



Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1994



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-94-1
Prepared in cooperation with the Commonwealth of Puerto Rico,
the Government of the U.S. Virgin Islands and other agencies

CALENDAR FOR WATER YEAR 1994

1993

[illegible]

1994

JANUARY							FEBRUARY							MARCH						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5			1	2	3	4	5
2	3	4	5	6	7	8	6	7	8	9	10	11	12	6	7	8	9	10	11	12
9	10	11	12	13	14	15	13	14	15	16	17	18	19	13	14	15	16	17	18	19
16	17	18	19	20	21	22	20	21	22	23	24	25	26	20	21	22	23	24	25	26
23	24	25	26	27	28	29	27	28						27	28	29	30	31		
30	31																			

APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2	1	2	3	4	5	6	7				1	2	3	4
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30		

JULY							AUGUST							SEPTEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2		1	2	3	4	5	6					1	2	3
3	4	5	6	7	8	9	7	8	9	10	11	12	13	4	5	6	7	8	9	10
10	11	12	13	14	15	16	14	15	16	17	18	19	20	11	12	13	14	15	16	17
17	18	19	20	21	22	23	21	22	23	24	25	26	27	18	19	20	21	22	23	24
24	25	26	27	28	29	30	28	29	30	31				25	26	27	28	29	30	
31																				



Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1994

by P.L. Díaz, Z. Aquino, C. Figueroa-Alamo, R.J. Vachier, and
A.V. Sánchez



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-94-1
Prepared in cooperation with the Commonwealth of Puerto Rico,
the Government of the U.S. Virgin Islands and other agencies

U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Gordon P. Eaton, Director

**For additional information on the water resources investigation programs
in Puerto Rico and the U.S. Virgin Islands write to:**

Chief, Caribbean District, Water Resources Division
U.S. Geological Survey
GSA Center, 651 Federal Drive
Suite 400-15
Guaynabo, Puerto Rico 00965
(Telephone: (809) 749-4346)
1995

PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, the U.S. Virgin Islands, and the other Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by state, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete and adheres to Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, processing and tabulations of the data:

José M. Agis	Rafael Peña-Cortez
George Arroyo	Francisco Pérez-Blair
Angel Class-Cacho	Carlos C. Rodríguez
Iris M. Concepción	Julio A. Rodríguez
Angel G. Ferrer	Miguel Rodríguez
Eduardo Figueroa	José René Sánchez
Pedro Galindo	Luis Santiago-Rivera
José González	Carlos Santos
Evelyn S. Guevara	Luis Soler
Senén Guzmán-Ríos	Heriberto Torres-Sierra
Sandra Lagares	José A. Torres
Ernesto Mangual	Ahmed Valencia
Carlos Narvaez	

Ruth I. Guzmán typed the text of the report. Francisco Maldonado prepared the illustrations.

This report was prepared in cooperation with agencies of the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other federal agencies under the general supervision of Allen L. Zack, District Chief, Caribbean District, San Juan, Puerto Rico.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE April 1995	3. REPORT TYPE AND DATES COVERED Annual - October 1, 1993 to September 30, 1994		
4. TITLE AND SUBTITLE Water Resources Data for Puerto Rico and the U.S. Virgin Islands Water Year 1994		5. FUNDING NUMBERS		
6. AUTHOR(S) Pedro L. Díaz, Zaida Aquino, Carlos Figueroa-Alamo, Ricardo J. Vachier, Ana V. Sánchez				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division GSA Center, 651 Federal Drive, Suite 400-15 Guaynabo, Puerto Rico 00965		8. PERFORMING ORGANIZATION REPORT NUMBER USGS-WDR-PR-94-1		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Division GSA Center, 651 Federal Drive, Suite 400-15 Guaynabo, Puerto Rico 00965		10. SPONSORING / MONITORING AGENCY REPORT NUMBER USGS/WRD/HD-95/280		
11. SUPPLEMENTARY NOTES Prepared in cooperation with the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and other agencies.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT NO RESTRICTION ON DISTRIBUTIONS		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) Water resources data for surface-water, quality-of-water, and ground-water records for the 1994 water year for Puerto Rico and the U.S. Virgin Islands consists of records of discharge, water quality of streams, and water levels of wells. This report contains discharge records for 76 streamflow-gaging stations; stage only for 5 gaging stations, daily sediments records for 22 streamflow stations; 94 partial-record or miscellaneous streamflow stations; stage records for 11 reservoirs; water-quality records for 16 streamflow-gaging stations, 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and water-level records for 62 observation wells. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating local and federal agencies in Puerto Rico and the U.S. Virgin Islands.				
14. SUBJECT TERMS *Surface water, *Water quality, *Ground water, Aquifers, Chemical analysis, Gaging stations, Hydrologic data, Sediments, Streamflow, Water analysis, Water levels, Lakes		15. NUMBER OF PAGES 532		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT	

CONTENTS

V

	Page
Preface	iii
List of surface-water and water-quality stations, in downstream order, for which records are published in this volume	vii
List of ground-water wells, by basin, for which records are published in this volume	xii
List of discontinued surface-water discharge or stage-only stations	xv
Introduction	1
Cooperation	2
Summary of hydrologic conditions	3
Precipitation	3
Surface water	3
Ground water	5
Water quality	8
Special networks and programs	9
Explanation of records	9
Station identification numbers	10
Downstream order system	10
Latitude-longitude system	10
Records of stage and water discharge	20
Data collection and computation	20
Data Presentation	21
Station manuscript	21
Data table of daily mean values	22
Statistics of monthly mean data	23
Summary statistics	23
Identifying estimated daily discharge	24
Accuracy of the records	24
Records of surface-water quality	25
Classification of records	25
Arrangement of records	25
On-site measurements and sample collection	25
Water temperature	26
Sediment	26
Laboratory measurements	26
Data presentation	27
Remark codes	28
Records of ground-water levels	28
Data collection and computation	28
Data presentation	29
Records of ground-water quality	29
Data collection and computation	30
Data presentation	30
Access to WATSTORE data	30
Definition of terms	31
Publications on Techniques of Water-Resources Investigations	41
Surface- and quality-of-water records for Puerto Rico	45
Discharge at partial-record stations in Puerto Rico	403
Water-quality at partial-record stations in Puerto Rico	415
Ground-water records for Puerto Rico	425
Surface-water records for the U.S. Virgin Islands	481
Ground-water records for the U.S. Virgin Islands	501
Index	509

ILLUSTRATIONS

	Page
Figure 1. Graph showing monthly-mean discharge of selected streams in Puerto Rico	4
2. Graph showing ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands	7
3. Map showing location of fecal coliform bacteria concentration at sampled sites	11
4. Map showing location of fecal streptococci bacteria concentration at sampled sites	12
5. Map showing location of surface-water stations in Puerto Rico	13
6. Map showing location of water-quality stations in Puerto Rico	14
7. Map showing location of low-flow partial-record stations in North-central Puerto Rico	15
8. Map showing location of ground-water stations in Puerto Rico	16
9. Map showing location of surface-water stations in U.S. Virgin Islands	17
10. Map showing location of ground-water stations in the U.S. Virgin Islands	18
11. Map showing location of surface-water stations in Vieques Island	19
12. Grid showing system for numbering wells and miscellaneous site (latitude and longitude)	20
13. Map showing the Río Guajataca basin	47
14. Map showing the Río Camuy basin	55
15. Map showing the Río Grande de Arecibo basin	59
16. Map showing the Río Grande de Manatí basin	85
17. Map showing the Río Cibuco basin	105
18. Map showing the Río de la Plata basin	113
19. Map showing the Río Hondo to the Río Puerto Nuevo basins	145
20. Map showing the Río Grande de Loíza basin	177
21. Map showing northeastern river basins the Río Herrera to the Río Antón Rufz basins	299
22. Map showing southeastern river basins the Río Humacao to the Río Seco basins	315
23. Map showing south coast river basins the Río Salinas to the Río Jacaguas basins	331
24. Map showing south coast river basins the Río Inabón to the Río Loco basins	347
25. Map showing the Río Guanajibo basin	367
26. Map showing the Río Yagüez and the Río Grande de Añasco basins	383
27. Map showing the Río Culebrinas basin	395

TABLES

	Page
Table 1. Island-wide monthly precipitation and annual averages for 1994 water year and the 30-year reference period, 1961-90	3
2. Highest water level recorded during 1994 water year and previous high water level (in feet below land-surface datum) at selected ground-water wells in Puerto Rico and the U.S. Virgin Islands	6
3. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1994	8
4. Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter	35

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME**

VII

(Letter after station name designates type of data:

(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

	Station number	Page
RIO GUAJATACA BASIN		
Río Guajataca at Lares (d,c,b)	50010500	48
Canal Principal de Diversiones at Lago Guajataca (c,b)	50011000	51
Río Guajataca above mouth near Quebradillas (c,b)	50011400	53
RIO CAMUY BASIN		
Río Camuy at Tres Pueblos Sinkhole (d)	50014600	56
Río Camuy near Bayaney (d)	50014800	57
Río Camuy near Hatillo (d)	50015700	58
RIO GRANDE DE ARECIBO BASIN		
Lago Garzas near Adjuntas (e)	50020100	60
Río Grande de Arecibo near Adjuntas (c,b)	50020500	61
Río Grande de Arecibo near Utuado (c,b)	50025000	63
Río Saliente at Coabey near Jayuya (d)	50025155	65
Río Caonillas above Lago Caonillas near Jayuya (c,b)	50026050	66
Lago Caonillas at Caonillas (e)	50026140	68
Río Grande de Arecibo below Lago Dos Bocas near Florida (c,b)	50027250	69
Río Grande de Arecibo above Arecibo (d)	50027750	71
Río Tanamá near Utuado (d,c,b,s)	50028000	72
Río Tanamá at Charco Hondo (d)	50028400	81
Río Grande de Arecibo at Central Cambalache (c,b)	50029000	82
RIO GRANDE DE MANATI BASIN		
Río Orocovis at Orocovis (d)	50030460	86
Río Orocovis near Orocovis (c,b)	50030700	87
Río Grande de Manatí near Morovis (d,c,b)	50031200	89
Lago El Guineo at Damsite (e)	50032290	92
Lago Matrullas at Damsite (e)	50032590	93
Río Bauta near Orocovis (d)	50034000	94
Río Grande de Manatí at Ciales (d)	50035000	95
Río Grande de Manatí at Highway 149 at Ciales (c,b)	50035500	96
Río Cialitos at Highway 649 at Ciales (c,b)	50035950	98
Río Grande de Manatí at Highway 2 near Manatí (d,c,b,p)	50038100	100
LAGUNA TORTUGUERO BASIN		
Laguna Tortuguero Outlet near Vega Baja (c,b)	50038200	105
RIO CIBUCO BASIN		
Río Cibuco below Corozal (d,c,b)	50038320	106
Río Cibuco at Vega Baja (d,c,b)	50039500	109
RIO DE LA PLATA BASIN		
Lago Carite at Gate Tower (e)	50039990	114
Río de La Plata at Proyecto La Plata (d,c,b)	50043000	115
Río de La Plata at Comerio (d,s)	50043800	118

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

	Station number	Page
Río de La Plata near Comerio (c,b)	50044000	125
Río Guadiana at Guadiana (d,s)	50044830	127
Río Guadiana near Naranjito (c,b)	50044850	133
Lago La Plata at Damsite (e)	50045000	135
Río de La Plata below La Plata Dam (d,s)	50045010	136
Río de La Plata at Highway 2 near Toa Alta (d,c,b,s,p)	50046000	142
 RIO HONDO BASIN		
Río Hondo at Flood Channel near Cataño (c,b)	50047530	146
 RIO DE BAYAMON BASIN		
Lago de Cidra at Damsite near Cidra (e)	50047550	148
Río de Bayamón below Cidra Dam (d,s)	50047560	149
Río de Bayamón near Aguas Buenas (c,b)	50047600	155
Río de Bayamón near Bayamón (d)	50047850	157
Río Guaynabo near Bayamón (c,b)	50047990	158
Río de Bayamón at Flood Channel at Bayamón (c,b,p)	50048510	160
 RIO PUERTO NUEVO BASIN		
Río Piedras:		
Río Piedras at El Señorial (d,s)	50048770	162
Río Piedras near Río Piedras (c,b,p)	50048800	169
Río Piedras at Hato Rey (d,c,b)	50049100	171
Laguna San José:		
Laguna San José No 2 at San Juan (c,b)	50049820	174
Bahía de San Juan:		
Bahía de San Juan No 5 at San Juan (c,b)	50049920	175
 QUEBRADA BLASINA BASIN		
Quebrada Blasina near Carolina (c,b)	50050300	178
 RIO GRANDE DE LOIZA BASIN		
Río Grande de Loíza at Quebrada Arenas (d)	50050900	180
Quebrada Blanca at El Jagual (d,s)	50051150	181
Quebrada Salvatierra near San Lorenzo (d,s)	50051180	187
Río Cayaguas at Cerro Gordo (d)	50051310	193
Río Grande de Loíza at Highway 183 near San Lorenzo (d,s)	50051800	194
Río Turabo above Borinquen (d,s)	50053025	201
Río Grande de Loíza at Caguas (d,c,b,s)	50055000	207
Río Caguitas near Aguas Buenas (d,s)	50055100	216
Río Caguitas near Caguas (d,s)	50055170	222
Río Caguitas at Villa Blanca at Caguas (d,s)	50055225	237
Río Caguitas at Highway 30 at Caguas (c,b)	50055250	243
Río Bairoa at Bairoa (d,s)	50055390	245
Río Bairoa near Caguas (c,b)	50055400	252

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

IX

	Station number	Page
Río Gurabo:		
Río Gurabo below El Mangó (d,s)	50055750	254
Río Valenciano near Juncos (d,s)	50056400	261
Río Gurabo at Gurabo (d,s)	50057000	268
Río Gurabo near Gurabo (c,b)	50057025	279
Río Cañas at Río Cañas (d,s)	50058350	281
Lago Loíza at Damsite (c,b,e)	50059000	288
Río Grande de Loíza below Damsite (d,s)	50059050	290
Río Grande de Loíza below Trujillo Alto (c,b)	50059100	295
Río Grande de Loíza at Carolina (e)	50061000	297
Río Canóvanas near Campo Rico (d)	50061800	298
RIO ESPIRITU SANTO BASIN		
Quebrada Sonadora near El Verde (d)	50063440	300
Quebrada Toronja at El Verde (d)	50063500	301
Río Espíritu Santo near Río Grande (d,c,b)	50063800	302
Río Grande near El Verde (d)	50064200	305
RIO MAMEYES BASIN		
Río Mameyes near Sabana (d)	50065500	306
RIO SABANA BASIN		
Río Sabana at Sabana (d)	50067000	307
RIO FAJARDO BASIN		
Río Fajardo near Fajardo (d,c,b,p)	50071000	308
Río Fajardo below Fajardo (c,b)	50072500	311
RIO BLANCO BASIN		
Quebrada Guabá near Naguabo (d)	50074950	313
Río Icacos near Naguabo (d)	50075000	314
RIO HUMACAO BASIN		
Río Humacao at Las Piedras (d)	50081000	316
Río Humacao at Highway 3 at Humacao (c,b)	50082000	317
RIO GUAYANES BASIN		
Río Guayanés at Yabucoa (c,b,p)	50083500	319
Río Guayanés above mouth at Playa de Guayanés (c,b)	50086500	321
RIO MAUNABO BASIN		
Río Maunabo at Lizas (d)	50090500	323
Río Maunabo at Maunabo (c,b)	50091000	324
RIO CHICO BASIN		
Río Chico at Providencia (c,b)	50091800	326
RIO GRANDE DE PATILLAS BASIN		
Río Grande de Patillas near Patillas (d,c,b)	50092000	328
RIO SALINAS BASIN		
Río Lapas near Rabo del Buey (d)	50100200	332
Río Majada at La Plena (d)	50100450	333

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

	Station number	Page
RIO COAMO BASIN		
Río Coamo at Coamo (d)	50106100	334
Río Coamo near Coamo (c,b)	50106500	335
RIO DESCALABRADO BASIN		
Río Descalabrado near Los Llanos (d)	50108000	337
RIO JACAGUAS BASIN		
Río Toa Vaca above Lago Toa Vaca (d,s)	50110900	338
Río Jacaguas at Juana Díaz (d)	50111500	345
RIO INABON BASIN		
Río Inabón at Real Abajo (d)	50112500	348
RIO BUCANA BASIN		
Río Bucaná:		
Río Cerrillos above Lago Cerrillos near Ponce (d)	50113800	349
Lago Cerrillos at Damsite near Ponce (e)	50113950	350
Río Cerrillos near Ponce (d,c,b)	50114000	352
Río Bucaná at Hwy 14 Bridge near Ponce (d)	50114390	355
RIO PORTUGUES BASIN		
Río Portugués near Ponce (d,c,b)	50115000	356
Río Portugués at Ponce (c,b,p)	50116200	359
RIO GUAYANILLA BASIN		
Río Guayanilla near Guayanilla (d)	50124200	361
Río Guayanilla at Central Rufina (c,b,p)	50124700	362
RIO YAUCO BASIN		
Lago Luchetti at Damsite (e)	50125780	364
RIO LOCO BASIN		
Río Loco at Guánica (c,b,p)	50129700	365
RIO GUANAJIBO BASIN		
Río Guanajibo at Highway 119 at San Germán (d)	50131990	368
Río Guanajibo near San Germán (c,b)	50133600	369
Río Rosario near Hormigueros (d,c,b,s)	50136400	371
Río Guanajibo near Hormigueros (d,c,b,p)	50138000	380
RIO YAGUEZ BASIN		
Río Yagüez near Mayagüez (c,b)	50138800	384
RIO GRANDE DE AÑASCO BASIN		
Lago Guayo near Castañer (e)	50141500	386
Río Grande de Añasco near Lares (c,b)	50143000	387
Río Grande de Añasco near San Sebastián (d,c,b,s)	50144000	389
Río Grande de Añasco near Añasco (c,b,p)	50146000	392
RIO CULEBRINAS BASIN		
Río Culebrinas near San Sebastián (c,b)	50147600	396
Río Culebrinas at Highway 404 near Moca (d)	50147800	398
Río Culebrinas near Aguada (c,b,p)	50149100	399

**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

XI

	Station number	Page
VIEQUES, P.R.		
Quebrada La Mina near Esperanza (e)	50232000	401
Quebrada Pilón at Colonia Puerto Real (e)	50233000	402
ST THOMAS, US VIRGIN ISLANDS		
Bonne Resolution Gut at Bonne Resolution (d)	50252000	482
Turpentine Run at Mount Zion (d)	50274000	483
ST JOHN, US VIRGIN ISLANDS		
Lameshur Bay Gut at Lameshur (d,s)	50292600	484
Fish Bay Gut at Fish Bay (d,s)	50294000	490
Guinea Gut at Bethany (d)	50295000	497
ST CROIX, US VIRGIN ISLANDS		
River Gut at Hwy 66 at Fairplanes (d)	50333700	498
Bethlehen Gut at Hwy 66 at Fairplanes (d)	50334500	499
Jolly Hill Gut at Jolly Hill (d)	50345000	500
Discharge at partial-record stations and miscellaneous sites		
Low-flow partial-record stations		404
Analyses of samples collected of water-quality partial-record stations and miscellaneous sites		
		416

GROUND-WATER WELLS, BY BASIN, FOR WHICH RECORDS ARE PUBLISHED

	Page
RIO GUAJATACA BASIN	
Well 182422067015100 Local number 165	426
Well 182647066552400 Local number 202	427
RIO GRANDE DE ARECIBO BASIN	
Well 182737066370900 Local number 204	428
RIO GRANDE DE MANATI BASIN	
Well 182757066325600 Local number 206	429
Well 182710066303700 Local number 207	430
Well 182308066260400 Local number 210	431
RIO CIBUCO BASIN	
Well 182647066201700 Local number 70	432
Well 182615066235300 Local number 211	433
Well 182515066194000 Local number 212	434
Well 182330066185700 Local number 213	435
RIO DE LA PLATA BASIN	
Well 182746066170800 Local number 214	436
Well 182530066135400 Local number 216	437
Well 182655066142400 Local number 217	438
RIO HONDO TO RIO PUERTO NUEVO BASINS	
Well 182623066111000 Local number 218	439
Well 182441066082600 Local number 219	440
Well 182413066044000 Local number 220	441
Well 182511066045401 Local number PN-2	442
Well 182435066052701 Local number PN-5	443
Well 182445066043401 Local number PN-6	444
Well 182437066040501 Local number PN-7	445
Well 182443066041502 Local number PN-8c	446
Well 182417066042700 Local number PN-10	447
Well 182349066032600 Local number PN-13	448
Well 182406066034700 Local number PN-19	449
RIO GRANDE DE LOIZA BASIN	
Well 181550065593201 Local number 50	450
Well 182515065594100 Local number 222	451
Well 181513065554601 Local number CJ-TW3B	452
Well 181352066025300 Local number CJ-TW19A	453
RIO HUMACAO TO RIO SECO BASINS	
Well 175858066100200 Local number 6	454
Well 180415065513900 Local number 96	455

RIO SALINAS TO RIO JACAGUAS BASINS

Well 175829066232200 Local number 87	456
Well 180002066132200 Local number HW-TW-01	457
Well 180001066122002 Local number HW-TW-03C	458
Well 175947066130601 Local number HW-TW-05B	459
Well 175957066123400 Local number HW-TW-13	460
Well 175946066102000 Local number HW-TW-14	461
Well 180206066135500 Local number RM-05	462
Well 180104066152300 Local number RM-10	463

RIO INABON TO RIO LOCO BASINS

Well 180133066503300 Local number 132	464
Well 175900066354200 Local number 141	465

RIO GUANAJIBO BASIN

Well 180132067033800 Local number 143	466
Well 180627067080600 Local number CR-TW-1	467
Well 180628067075800 Local number CR-TW-2A	468
Well 180628067075801 Local number CR-TW-2B	469
Well 180628067075802 Local number CR-TW-2C	470
Well 180643067080400 Local number CR-TW-3	471
Well 180650067073700 Local number CR-TW-4	472
Well 180557067083100 Local number CR-TW-5	473
Well 180617067083300 Local number CR-TW-6	474
Well 180604067085100 Local number CR-TW-7	475
Well 180547067084800 Local number CR-TW-8	476
Well 180628067084300 Local number CR-TW-9A	477
Well 180547067073100 Local number CR-TW-10	478

RIO CULEBRINAS BASIN

Well 182442067091700 Local number 200	479
---	-----

ST. CROIX, U.S. VIRGIN ISLANDS

Well 174225064472000 Local number 2	502
Well 174243064475100 Local number 3	503
Well 174316064480800 Local number 13	504

	Page
ST. THOMAS, U.S. VIRGIN ISLANDS	
Well 182038064550300 Local number 6	505
Well 182038064580000 Local number 8	506
ST. JOHN, U.S. VIRGIN ISLANDS	
Well 181956064464500 Local number 11	507
Well 182048064430400 Local number 14	508

DISCONTINUED STREAMFLOW STATIONS

The following continuous-record streamflow stations in Puerto Rico and the U.S. Virgin Islands have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

Station number	Station name	Drainage area (mi ²)	Period of record
50007000	Quebrada de los Cedros near Isabela	6.91	1970
50010600	Río Guajataca above Lago de Guajataca	--	1984-89
50011000	Canal Diversion Lago Guajataca	--	1970
50011200	Río Guajataca below Lago Guajataca	--	1969-70, 1984-87
50011400	Río Guajataca above mouth near Quebradillas	--	1969-70, 1984-89
50013000	Río Camuy near Lares	7.62	1969-71
50014000	Río Criminales near Lares	4.68	1969-70
50016000	Río Camuy near Camuy	--	1969-73
50021000	Río Pellejas at Central Pellejas	5.46	1968-70
50021050	Río Pellejas below Central Pellejas	7.89	1972-75
50021500	Río Pellejas near Utuado	9.55	1969-71
50023000	Río Viví near Central Pellejas	5.66	1969-75
50027200	Río Grande de Arecibo blw. Lago dos Bocas	169	1970-71
50029000	Río Grande de Arecibo at Central Cambalache	200	1969-83
50031500	Río Sana Muerto near Orocovis	3.68	1965-70
50035200	Río Grande de Manatí at Hwy 145 at Ciales	132	1972
50035950	Río Cialitos at Hwy 649 at Ciales	17	1970-82
50038360	Río Mavilla near Corozal	9.51	1969-70
50038600	Río Unibón near Morovis	5.29	1969-70
50038700	Río Morovis at Morovis	1.26	1968
50038900	Río Indio at Vega Baja	--	1963, 66, 71
50039600	Río Cibuco at Central San Vicente	--	1969-72
50043200	Río Usabon near Barranquitas	9.15	1968-69, 71
50043400	Río Aibonito Tributary near Aibonito	1.13	1968-71
50044600	Río Guadiana near Naranjito	1.73	1971
50044650	Quebrada del Toro near Naranjito	0.54	1971
50044800	Quebrada Anones near Naranjito	2.32	1971
50045700	Río Lajas at Toa Alta	8.65	1966-75
50047535	Río de Bayamón at Arenas	0.45	1992-93
50047540	Río Sabana at Vista Monte	0.80	1992-93
50047820	Río de Bayamón at Hwy 174 near Bayamón	31.90	1966
50048000	Río de Bayamón at Bayamón	71.90	1963-67
50049310	Quebrada Josefina at Piflero Avenue	3.84	1988-91
50053050	Río Turabo at Borinquen	7.89	1984-90
50054000	Quebrada de las Quebradillas near Caguas	6.25	1969-71, 73
50055650	Quebrada Caimito near Juncos	0.82	1984-87
50056000	Río Valenciano near Las Piedras	6.85	1971
50056900	Quebrada Mamey near Gurabo	2.30	1984-92
50058300	Quebrada Arena near Caguas	--	1971
50059000	Río Piedras at Río Piedras	12.5	1971-82, 1987-93
50061300	Río Canovanillas near Loíza	14.40	1968-73
50062500	Río Herrera near Colonia Dolores	2.75	1968-72
50063300	Río Espíritu Santo near El Verde	2.23	1968-73
50065700	Río Mameyes at Hwy 191 at Mameyes	11.80	1967-85
50072000	Río Fajardo at Fajardo	21.60	1960-63
50073200	Río Dagua at Dagua	2.26	1966-82
50073400	Quebrada Palma at Dagua	4.84	1972-77
50074000	Río Santiago at Naguabo	4.99	1966-82
50075500	Río Blanco at Florida	11.00	1966-82
50076000	Río Blanco near Florida	12.30	1983-85
50077000	Río Blanco at Río Blanco	17.60	1973-77
50077400	Río Blanco at Colonia La Fe	18.80	1967-70
50078500	Río Anton Ruiz at Central Pasto Viejo	4.33	1968
50081500	Río Humacao near Humacao	9.23	1973
50082000	Río Humacao at Hwy 3 at Humacao	17.30	1983-85
50082200	Río Humacao near La Suiza	19.90	1965-66, 1969-71
50082800	Río Guayanés near Colonia Laura	4.69	1969-82
50083500	Río Guayanés near Yabucoa	17.20	1969-71
50084000	Río Limones near Yabucoa	7.89	1969-71
50085100	Río Guayanés at Central Roig	26.60	1965-66, 1968, 70

DISCONTINUED STREAMFLOW STATIONS--Continued

Station number	Station name	Drainage area (mi ²)	Period of record
50086100	Río del Ingenio at Comunas	5.50	1965-66, 1968-69
50086500	Río Guayanés at Playa Guayanés	34.00	1965-66, 1968-71
50087200	Caño Santiago near Central Roig	6.04	1965-71
50091000	Río Maunabo at Maunabo	12.40	1965, 67, 1969-82
50091200	Río Maunabo near Maunabo	12.70	1971-72
50091400	Río Jacaboa near Lamboglia	4.13	1965-73
50091700	Río Chico at Patillas	6.82	1965, 1969-72
50091800	Río Chico at Providencia	4.90	1965, 1967-69, 1971
50094200	Río Grande de Patillas at Patillas	27.90	1967, 1969, 1971
50094300	Río Grande de Patillas at Providencia	29.00	1971
50094400	Río Nigua at Pitahaya	5.86	1965, 1969, 1970-71, 1973
50095200	Río Guamaní at Guayama	8.22	1969-71
50095500	Río Guamaní near Guayama	12.30	1969-70
50099000	Quebrada Aguas Verdes near Salinas	0.39	1989
50106500	Río Coamo near Coamo	46.00	1967-68, 1984-85, 1986
50106900	Río Coamo below Lago Coamo near Coamo	65.40	1967-68
50107200	Río Coamo at mouth near Santa Isabel	69.30	1967-68
50108200	Río Descalabrado at Las Ollas	13.90	1965, 1967-71
50108500	Río Descalabrado near Santa Isabel	18.10	1966-67
50111200	Río Toa Vaca near Villalba	21.40	1966-70
50111700	Río Jacaguas near Juana Díaz	53.20	1966-68
50111750	Río Jacaguas below Quebrada Guanábana	56.30	1989
50112100	Río Jacaguas near Arús	59.60	1966-67
50112600	Río Inabón at Coto Laurel	--	1967-71
50113100	Río Guayo near Coto Laurel	11.80	1965, 1968-71
50113500	Río Inabón near Arús	30.20	1964-65
50114400	Río Bucaná near Ponce	25.60	1965-81
50114700	Río Bucaná near Playa de Ponce	28.40	1964-67
50115900	Río Portugués at Hwy 14 at Ponce	--	1965-82
50116500	Río Portugués at Highway 2 Bypass at Ponce	20.50	1964-65
50119000	Río Matilde at Ponce	19.40	1965-66
50121000	Río Tallaboa at Peñuelas	24.20	1959-82
50122000	Río Tallaboa at Tallaboa	31.50	1959-63
50124000	Río Guayanilla nr Guayanilla	18.50	1961-69
50124500	Río Guayanilla at Guayanilla	20.80	1971-82
50125900	Río Duey above Diversion near Yauco	8.93	1977-80
50126150	Río Yauco above Diversion Monserrate near Yauco	27.20	1978-85
50128000	Río Yauco near Yauco	45.50	1962-64, 1977-85
50129000	Río Loco near Yauco	8.50	1963-67
50129500	Río Loco near Guánica	21.00	1963-69
50129900	Laguna Cartagena near Boquerón	--	1984-86
50130320	Quebrada Mamey at Joyuda	0.38	1986-88
50136000	Río Rosario at Rosario	16.40	1975-86
50141000	Río Yahuecas near Adjuntas	15.40	1980-85
50145000	Río Grande de Añasco at El Espino	108.00	1959-66, 1961-63
50147000	Río Culebrinas at San Sebastian	16.70	1960-82
50214500	Quebrada Resaca near Monte Resaca, Culebra	0.23	1991-93
50215000	Drainage Canal at Culebra Airport, Culebra	0.08	1991-93
50231000	Quebrada Confresí Tributary near Isabel II, Vieques	0.28	1991-93
50276000	Turpentine Run at Mariendal	2.97	1963-69, 1978-86
50295500	Cruz Bay Gut at Cruz Bay, St. John, VI	0.09	1992-93
50332000	River Gut at River	1.42	1991-93
50333500	River Gut near Golden Grove	5.40	1990-93
50337500	Gut 4.5 at Cane Valley	0.21	1991-93
50348000	Salt River at Canaan	0.36	1991-93
50349000	Gut 10 near Altona	0.13	1991-93

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1994."

This report includes records on both surface and ground water. Specifically, it contains: (1) Discharge records for 76 streamflow-gaging stations, stage only for 5 gaging stations, daily sediment records for 22 streamflow stations, 94 partial-record or miscellaneous streamflow stations, stage records for 11 reservoirs, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and (3) water-level records for 62 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico". Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975-76, 1977, 1978, 1979-80, 1981-82, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, and 1993 water years consist of one volume each and contain data for streamflow, water quality and ground water.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PR-94-1." These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (809) 749-4346. A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

COOPERATION

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

- Puerto Rico Environmental Quality Board
- Puerto Rico Aqueduct and Sewer Authority
- Puerto Rico Department of Agriculture
- Puerto Rico Industrial Development Company
- Puerto Rico Department of Housing
- Puerto Rico Highway Authority
- Puerto Rico Department of Natural Resources
- Puerto Rico Department of Health
- Puerto Rico Electric and Power Authority
- Puerto Rico Legislature
- Puerto Rico Civil Defense
- U.S. Department of the Interior, Office of Territorial and International Affairs
- U.S. Virgin Islands Department of Planning and Natural Resources

Funds were also provided by the Corps of Engineers, U.S. Army, for the collection of records at seven gaging stations published in this report.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

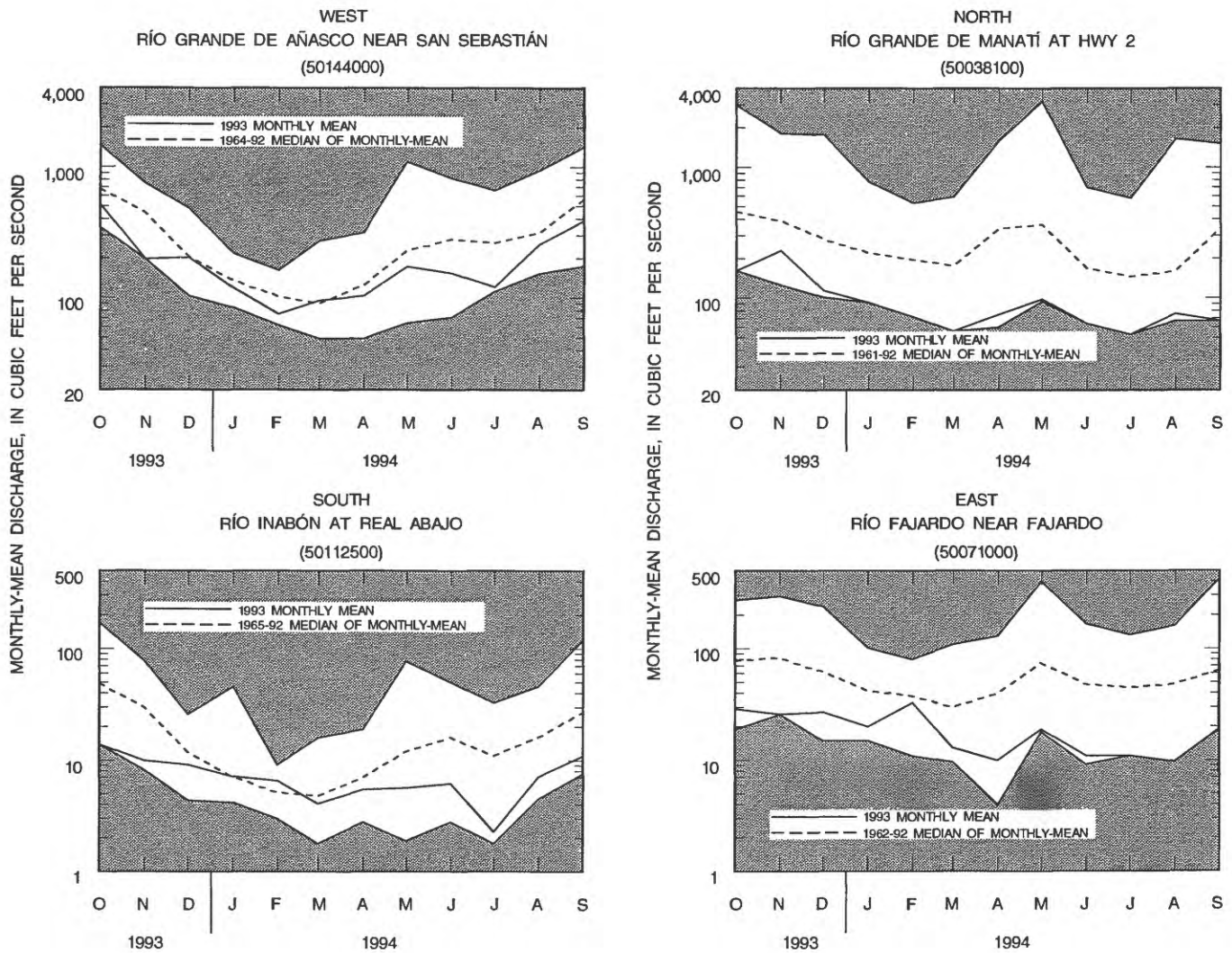
Precipitation throughout Puerto Rico during the 1994 water year (October 1993 to September 1994) was significantly lower than normal. Rainfall averaged about 67 percent of normal, averaging 63 percent of normal in northern Puerto Rico, 69 percent of normal in southern Puerto Rico, 74 percent of normal in eastern Puerto Rico, and 64 percent of normal in western Puerto Rico. This below-normal rainfall condition caused a severe drought which affected the whole island of Puerto Rico in some degree. Monthly average rainfall islandwide for the 1994 water year and for the 30-year reference period 1951-1980 used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration, are listed in table 1.

Table 1. Islandwide monthly rainfall and annual averages for the 1994 water year and the 30-year reference period, 1951-80

Month	1994 Water Year (inches)	30-year normal (inches)
OCT	3.74	7.74
NOV	6.07	5.95
DEC	2.33	4.32
JAN	2.13	3.08
FEB	2.17	2.35
MAR	2.43	2.62
APR	2.90	4.63
MAY	3.61	6.48
JUN	2.70	5.58
JUL	2.63	5.48
AUG	5.28	7.28
SEP	6.43	7.78
TOTAL	42.42	63.29

Surface Water

Streamflow during 1994 water year was significantly below average throughout Puerto Rico, making it one of the driest years ever recorded at the four index stations. A comparison of the monthly-mean flows during 1994 water year, the long-term median of the monthly-mean flow, and the extreme monthly flows for the index stations on the Río Grande de Añasco, the Río Grande de Manatí, the Río Inabón, and the Río Fajardo are shown in figure 1. The four index stations recorded monthly-mean flows well below the long-term median. In fact, some new historical minimum monthly-mean flows were established for these index stations for the period of record.



Unshaded area indicates range between highest and lowest monthly-mean discharges for the period of record to water year 1994.

Figure 1.--Monthly-mean discharge of selected streams in Puerto Rico.

Rainfall deficits since August 1993 reduced streamflow to major water-supply reservoirs, principally Lago Loíza, Lago de la Plata, and Lago de Cidra. This prolonged dry condition compelled the Puerto Rico Aqueduct and Sewer Authority to implement an emergency water rationing plan, which affected nearly 1.9 million residents in 25 towns. The most affected zone was San Juan metropolitan area with nearly 1.5 million inhabitants.

In the northern area, streamflow at the index station on the Río Grande de Manatí at Highway 2, was 36 percent of the long-term median of monthly-mean flows during the entire period. This station recorded historical minimum monthly-mean flows for seven months: October, January, February, March, June, July, and September.

In the eastern area, streamflow at the Río Fajardo near Fajardo index station was also below the long-term median of monthly-mean flows with an average of 35 percent of normal. Four months recorded historical minimum monthly-mean flows for this station during the year. These were November, July, August, and September.

In the southern area, monthly-mean flow at the Río Inabón at Real Abajo index station was 45 percent of the long-term median of monthly-mean flows. Historical minimum monthly-mean flow was recorded for the month of October.

In the western area, the Río Grande de Añasco near San Sebastián index station had monthly-mean flows of 70 percent of the long-term median of monthly-mean flows, being the area with highest streamflow for this year. Historical minimum monthly-mean flow was recorded for the month of November.

Ground-Water Levels

Ground-water levels in the major aquifers of Puerto Rico followed a seasonal trend associated with rainfall patterns during water year 1994. Water levels generally declined as below-normal rainfall was recorded islandwide. Record-low water levels were recorded at several wells in Puerto Rico and the U.S. Virgin Islands (table 2).

Ground-water levels in the north coast limestone aquifer of Puerto Rico generally declined during the water year 1994 in response to below-normal rainfall and sustained ground-water withdrawals. At the Sabana Hoyos index well (fig. 2), water level declined 1.5 feet from October 1993 to September 1994.

Ground-water levels in the south coast alluvial aquifer followed a declining trend during this period of record. At the Alomar index well (fig. 2), the water level dropped 6.5 feet during water year 1994. The declining trend was accompanied by various fluctuations as ground-water withdrawals increased for public, irrigation, and industrial uses.

Ground-water level in the Guinea Gut observation well in St. John, U.S. Virgin Islands, rose significantly during November 1993 in response to an intense rainfall event (fig. 2). However, the water levels declined during the rest of the 1994 water year as rainfall events became uncommon. The water levels in this well were about 6 feet lower at the end of the water year than at the beginning.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Table 2. Lowest ground-water levels recorded during year 1994 and previous low ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

[PR, Puerto Rico; St.T, St. Thomas; St.J, St. John; mm-dd-yy, month-day-year; ft-blsl, feet below land-surface datum; mm-yy, month-year; +, above land-surface datum]

Well name or number	Local number	Location	1994 highest water level (ft-blsl)	Date (mm-dd-yy)	Previous highest water level (ft-blsl)	Date (mm-dd-yy)	Period of record (mm-yy)
Gilberto Rivera	204	PR	52.59	04-15-94	52.56	04-26-93	10-86 to 9-94
Gelo Martínez	210	PR	85.32	09-29-94 09-29-94	83.01	09-29-92	10-85 to 9-94
Rosario No. 2	211	PR	195.88	07-22-94 to 07-26-94	193.73	05-16-92 to 05-23-92	10-85 to 9-94
Ponderosa TW-1	212	PR	75.03	09-30-94	74.63	10-27-86 10-28-86	10-85 to 9-94
Pampano No. 2	213	PR	61.17	08-08-94	61.13	11-03-92	10-85 to 9-94
Dorado Beach No. 7	214	PR	21.01	07-23-94 07-24-94	20.68	05-16-92	11-85 to 9-94
Navy-Campanillas	216	PR	18.40	09-24-94	14.72	04-28-86	10-85 to 9-94
Monserate TW-2	217	PR	3.21	06-09-94	2.75	04-25-93 04-26-93 04-27-93	11-85 to 9-94
Levittown No. 7	218	PR	10.83	06-27-94	9.77	03-23-86	10-85 to 6-94
Ft. Buchanan No. 1	219	PR	52.66	09-27-94	50.40	08-30-93	12-85 to 9-94
Salud Mental No. 1	PN-5	PR	32.82	09-25-94 09-26-94 09-27-94	30.23	05-21-92	4-89 to 9-94
Alsacia No. 2	PN-6	PR	13.26	09-30-94	9.04	03-31-93	7-89 to 9-94
Luis Muñoz Marín 1C	PN-8c	PR	16.10	09-30-94	15.46	04-28-92 04-29-92	2-89 to 9-94
Las Americas No. 1	PN-10	PR	6.74	09-30-94	2.48	10-26-89 10-27-89	10-89 to 9-94
Jardín Botánico No. 1	PN-13	PR	17.82	09-18-94 09-19-94	17.08	04-16-92	3-89 to 9-94
Jardín Botánico No. 3	PN-19	PR	12.63	09-19-94 09-20-94	8.23	04-28-92	6-91 to 9-94
CJ-TW 3B	CJ-TW 3B	PR	20.31	09-19-94	18.40	05-01-92 05-02-92	9-91 to 9-94
CJ-TW 19A	CJ-TW 19A	PR	25.54	09-04-94 to 09-08-94	25.25	05-15-92 05-16-92 05-17-92	9-91 to 9-94
HW-TW-01	HW-TW-01	PR	31.98	09-17-94 09-20-94 to 09-23-94	31.45	05-21-92 05-22-92	4-88 to 9-94
HW-TW-03C	HW-TW-03C	PR	57.68	09-17-94 09-18-94 09-19-94	55.24	09-30-93	12-88 to 9-94
HW-TW-05B	HW-TW-05B	PR	23.95	09-19-94 09-20-94	22.14	09-05-90	4-88 to 9-94
RM # 5	RM # 5	PR	24.24	09-20-94	19.87	06-14-90	3-89 to 9-94
RM # 10	RM # 10	PR	35.77	09-17-94 to 09-30-94	35.56	08-28-90 08-29-90	3-89 to 9-94 3-89 to 9-94
CR-TW-2C	CR-TW-2C	PR	8.05	01-23-94	8.03	08-12-93	6-92 to 1-94
GOLDEN GROVE 6	3	St.C	36.76	09-30-94	35.23	11-23-92 11-24-92	3-82 to 9-94
VIEO-6	8	St.T	32.11	09-08-94 09-09-94	30.09	09-30-93	10-91 to 9-94
GUINEA GUT	11	St.J	28.45	09-30-94	25.25	10-02-85	3-82 to 9-94
VIEO-4	14	St.J	12.27	06-16-94	12.06	09-04-92	5-91 to 7-94

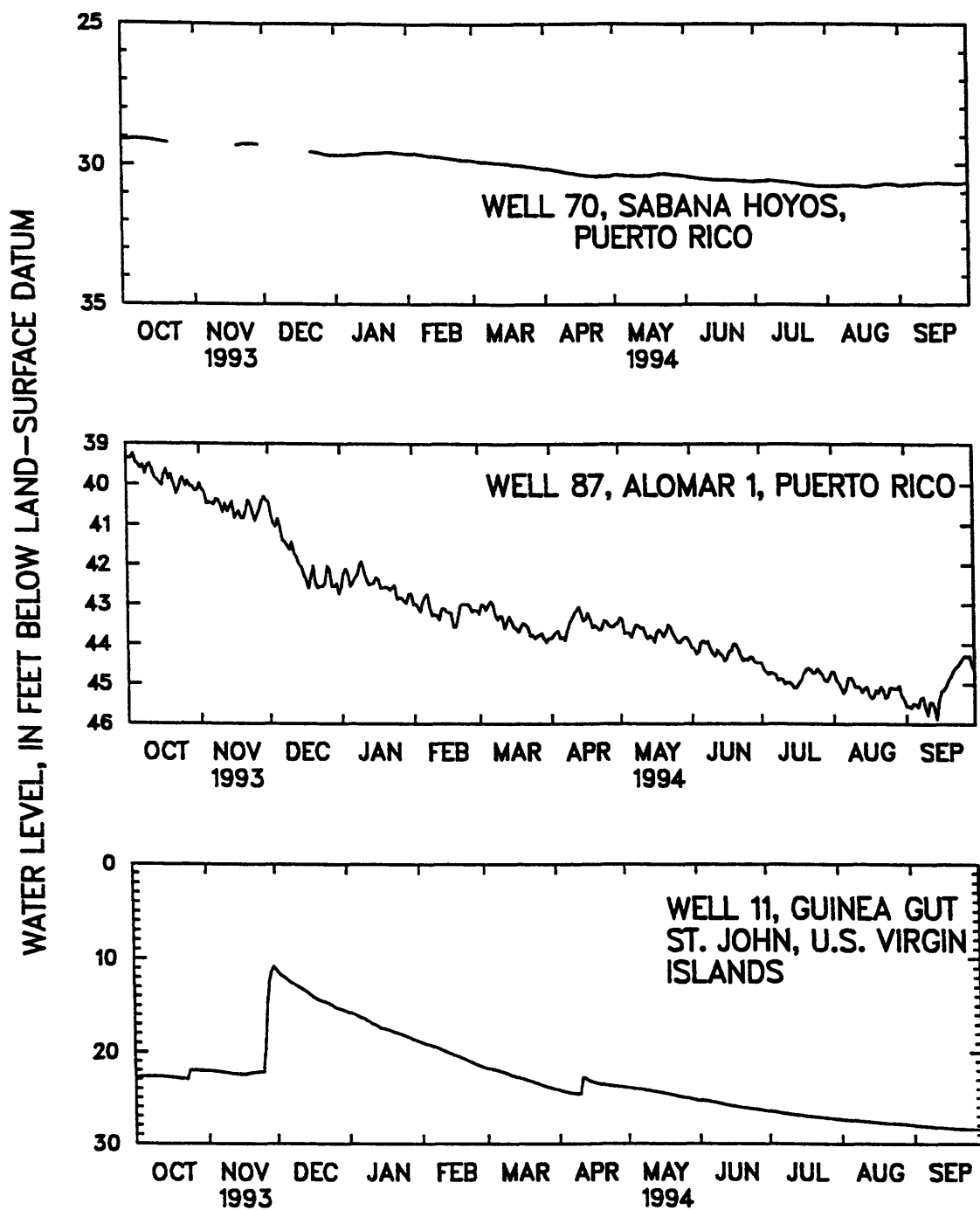


Figure 2.--Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Water Quality

In water year 1994, the U.S. Geological Survey, in cooperation with local government agencies, collected water-quality data at 80 surface-water station in Puerto Rico. The water-quality data collected at these stations included the major chemical constituents and several additional constituents that are listed in table 3. The highest concentration of each of these constituents detected during water year 1994 and the stations where it was detected are summarized in table 3.

Table 3. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1994 [All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

Station number	Station name	Constituent	Concentration
50124700	Río Guayanilla at Central Rufina	Sulfide	3.5
50106500	Río Coamo near Coamo	Boron	2.9
50057025	Río Gurabo near Gurabo	Manganese	0.68
50055250	Río Caguaitas at Hwy 30 at Caguas	Iron	6.8
50011000	Canal Diversión at Lago Guajataca	Zinc	0.17
50124700	Río Guayanilla at Central Rufina	Cyanide	0.02
50047990	Río Guaynabo near Bayamón	Phenols	0.007
50106500	Río Coamo near Coamo	MBAS	0.18

The presence of high concentrations of fecal coliform (FC) and fecal streptococci (FS) bacteria continued to be the principal surface-water quality problem in Puerto Rico during water year 1994. The highest concentrations observed during this year were in stations in the San Juan metropolitan area, which has the highest population concentration in Puerto Rico. In addition to the effluent from the San Juan metropolitan area, the streams are also receiving effluents from the upper basin sewage treatment plants. The main sources of contamination in surface-water systems in Puerto Rico are discharges of liquid waste from industrial and municipal sources. The highest concentrations of fecal coliform and fecal streptococcal bacteria in surface waters in Puerto Rico generally occurred in streams draining from densely populated and industrialized areas of the island.

Suspended sediment concentrations were monitored at 23 stations in Puerto Rico during the 1994 water year as part of the cooperative program between the U.S. Geological Survey and various Commonwealth and Federal agencies. High suspended sediment concentrations are a common problem in many streams in Puerto Rico. Most of the streams with high suspended sediment concentration were related to land use, especially construction of urbanizations and roads, agriculture and activities where soil movement was involved. The high suspended sediment concentrations affects the water quality for drinking water and decrease the storage capacities of reservoirs used for water supply.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites on NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Radiochemical Programs is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF RECORDS

The surface- and ground-water records published in this report are for the 1994 water year that began October 1, 1993 and ended September 30, 1994. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 11. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994**Station Identification Numbers**

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations in first rank, second rank, and other ranks of tributaries.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 50028000, which appears just to the left of the station name, includes the 2-digit part number "50" plus the 6-digit downstream order number "028000."

Latitude-Longitude System

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig. 12).

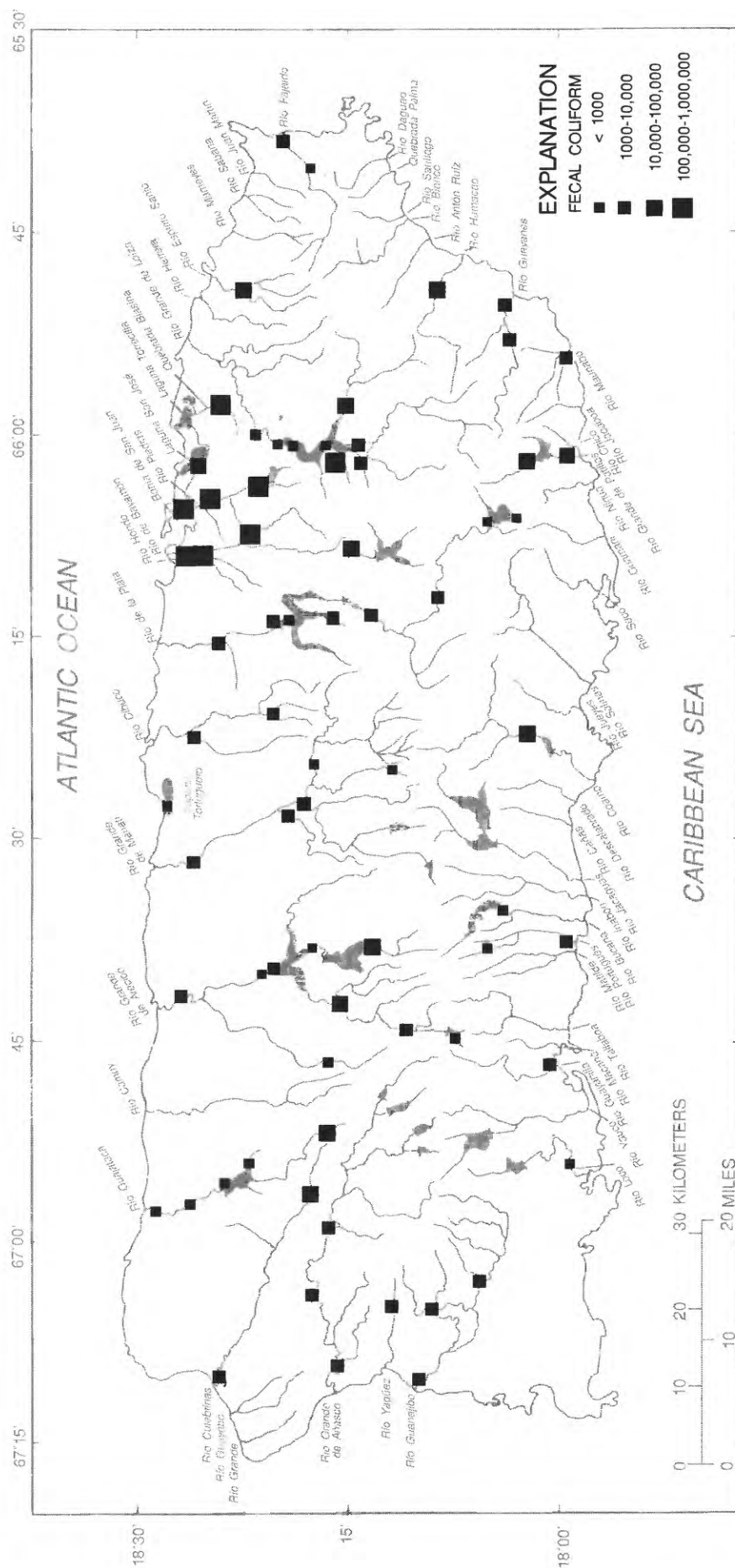
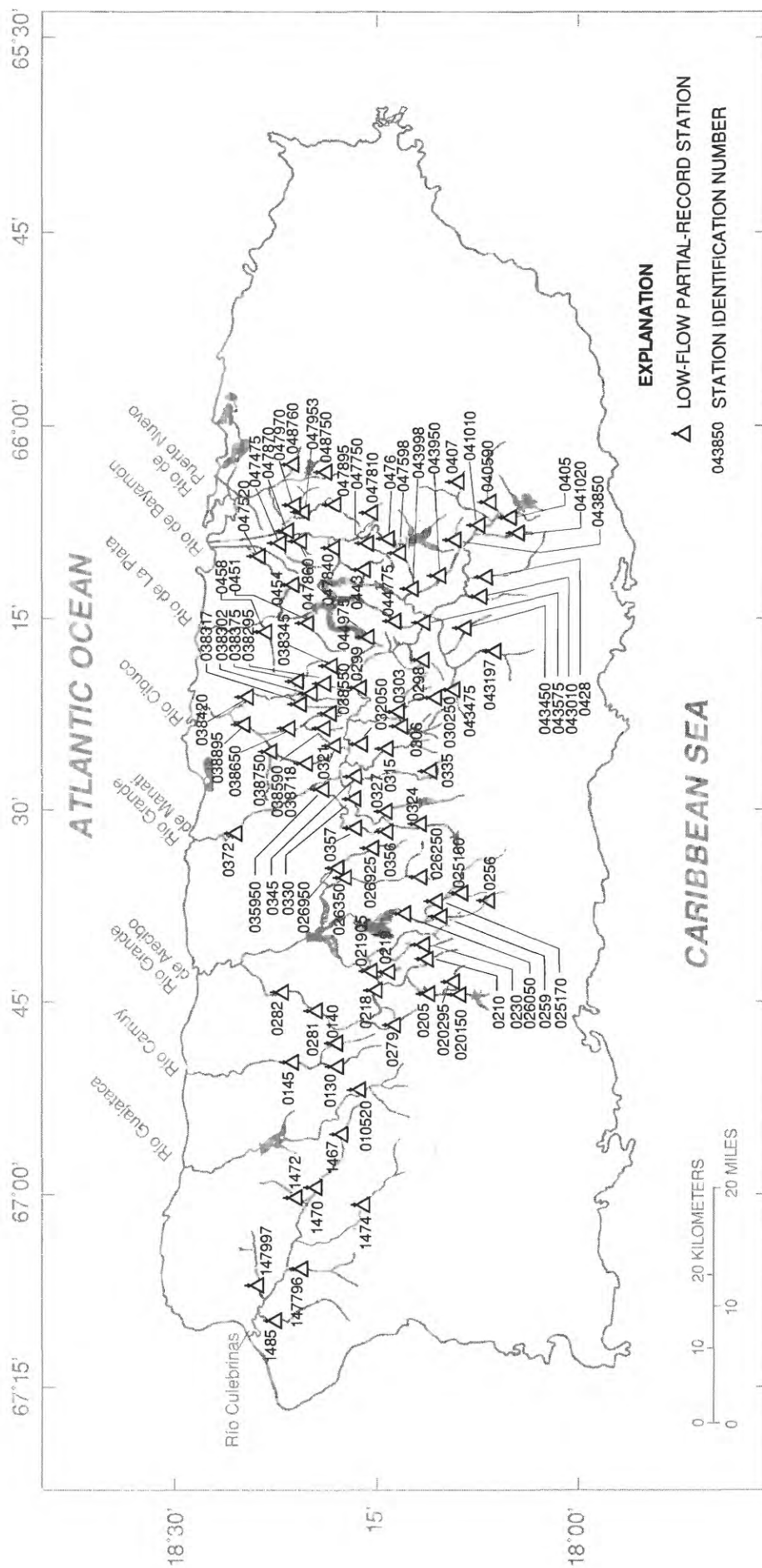


Figure 3.--Location of fecal coliform bacteria concentration at sampled sites.

Figure 6.--Location of water-quality stations in Puerto Rico.



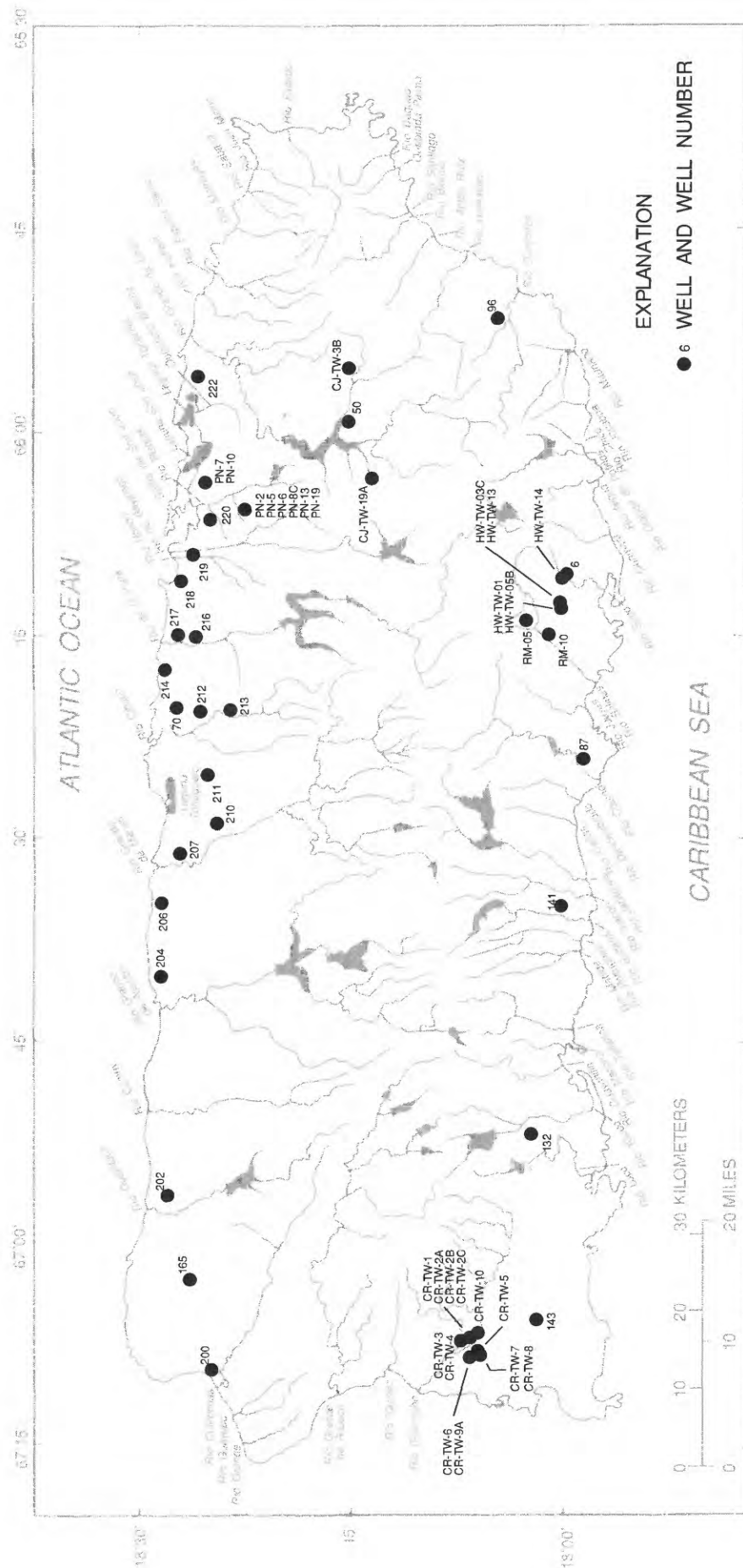


Figure 8.--Location of ground-water stations in Puerto Rico.

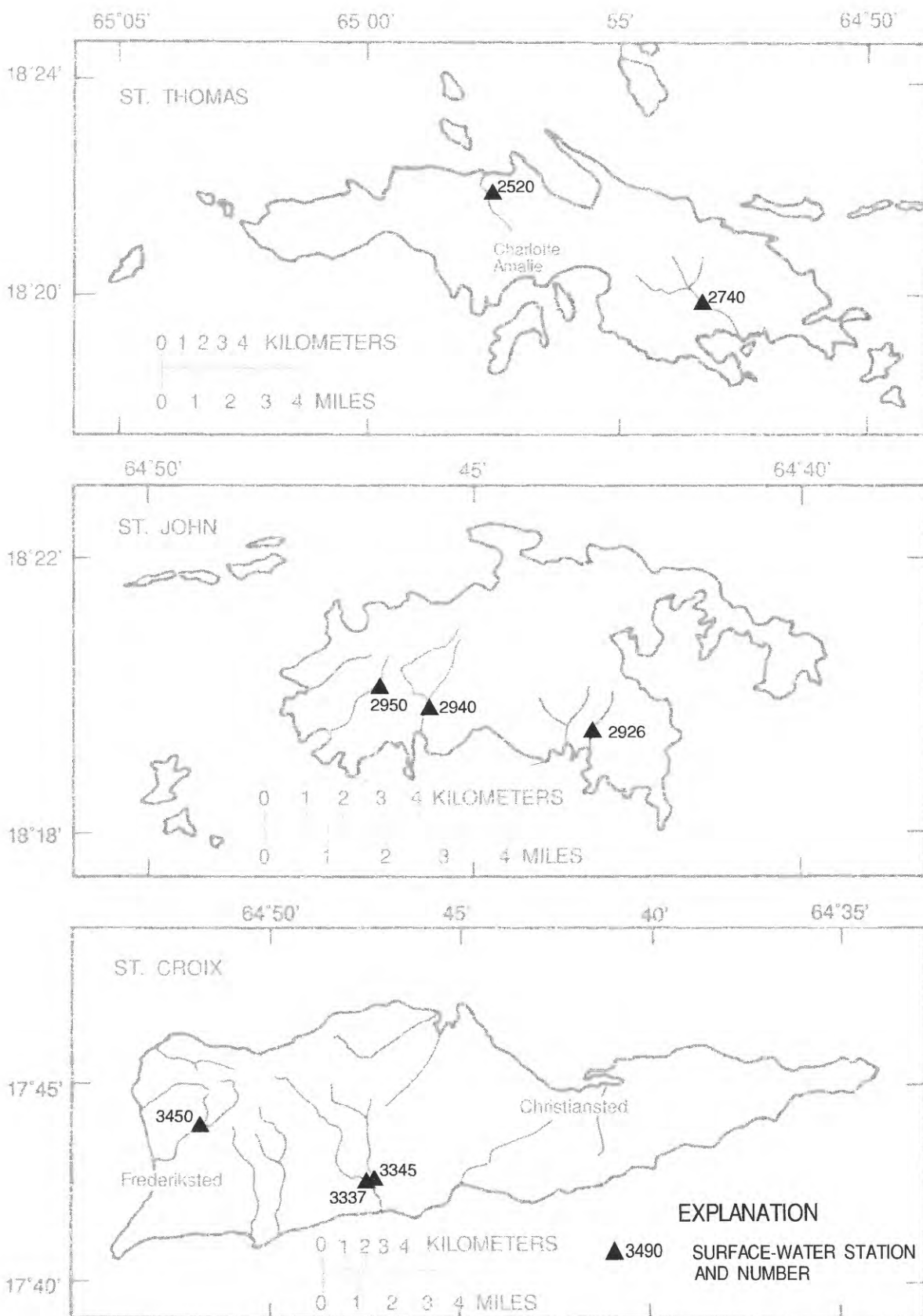


Figure 9.--Location of surface-water stations in the U.S. Virgin Islands.

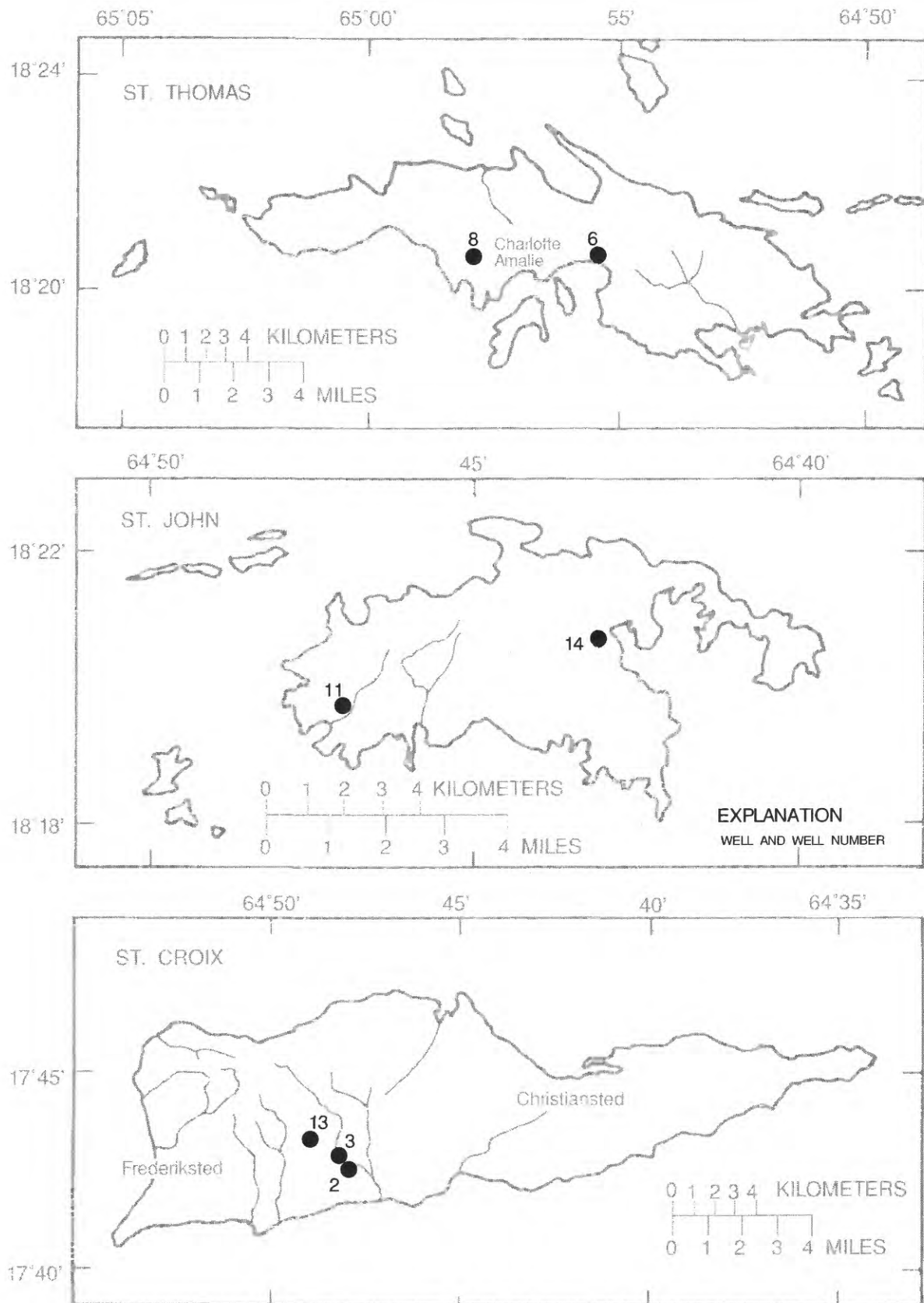


Figure 10.--Location of ground-water stations in the U.S. Virgin Islands.

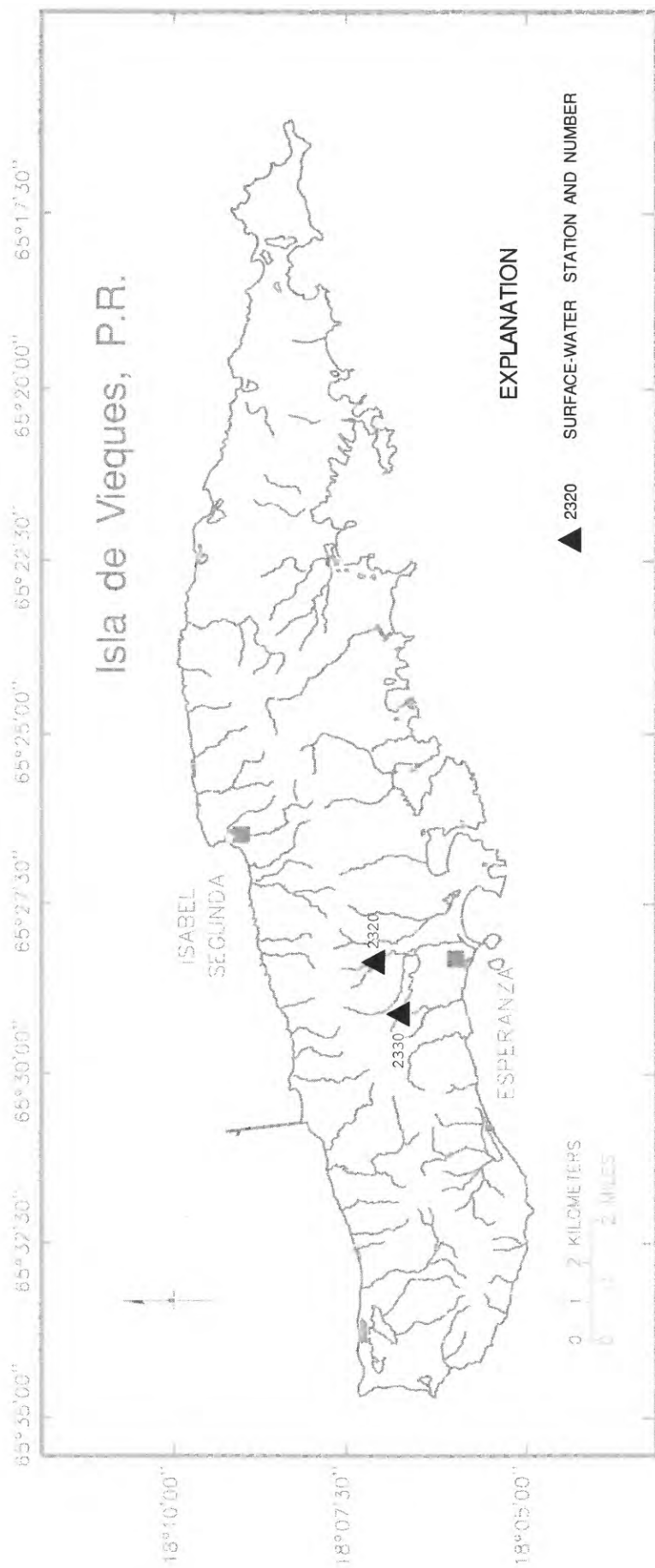


Figure 11.--Location of surface-water stations in Vieques Island.

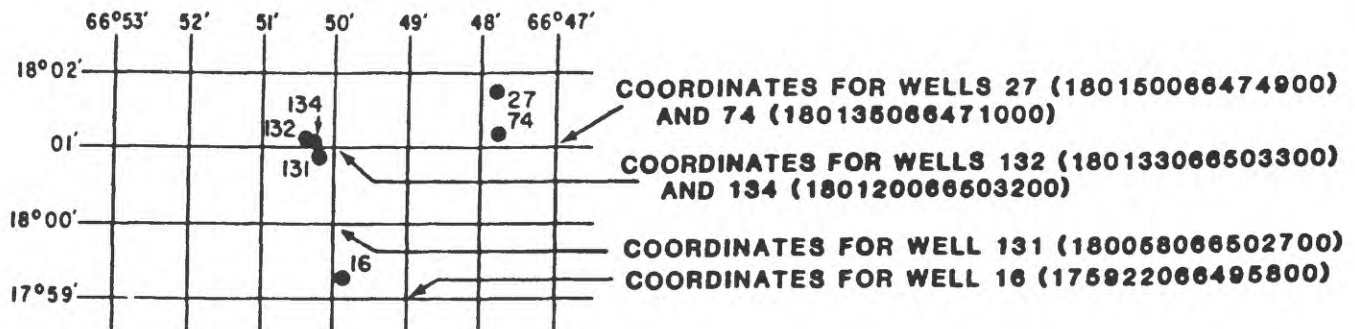


Figure 12.--Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this type of report. Location of all complete-record stations for which data are given in this report are shown in figures 5 and 8.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals or electronic satellite data collector platforms that receive stage values at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic surveys may be necessary to redefine it. Even when this is done, as time between the last survey increases, the contents computed may increase in error. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is loose in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimum, and flow duration.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the stations descriptions.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonable be considered equivalent with records from the present station.

REVISED RECORDS.--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computations, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

Data table of daily mean value

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN"); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulations or diversion or if the drainage area includes large noncontributing areas.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flow are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS ____-____, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station records within the specified water years, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS ____-____," will consist of all of the station records within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistics).

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of the title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurements in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of discharge measurements at low-flow partial-record stations. These measurements are generally made in times of drought to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Caribbean District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records, when available, (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, suspended-sediment loads for other periods of similar discharge, and computed by the subdivided-day method using the transport curves.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment are included for some stations.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994**Data Presentation**

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence, when these parameters are studied.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
>	Actual value is known to be greater than the value shown
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
L	Biological organism count less than 0.5 percent (organism may be observed rather than counted)
D	Biological organism count equal to or greater than 15 percent (dominant)
&	Biological organism estimated as dominant

Records of Ground-Water Levels

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 10.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every day and as an instantaneous observation at noon.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994**Data Presentation**

Each well record consists of three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings of the well description.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows each water-level table.

Records of Ground-Water Quality

Records of ground-water quality in this type of report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this type of report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples are obtained by trained personnel. The wells sampled are pumped long enough to assure that the water collected comes directly from the aquifer and has not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

The records of ground-water quality, when available, are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water level records. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the U.S. Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water-Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- * Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.

- * Daily Values Files - Contains over 220 million daily values of streamflow, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water level.

- * Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.

- * Water-Quality Data - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemicals characteristics of both surface and ground water.

- * Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data report published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's offices. (See address on the back of the title page). A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data as used in this report, are defined below. See also the table for converting inch- pound units to the International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present a stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C \pm 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (ft³/s/day) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculations of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$d = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where "i" is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Ground-water station is a well at which observations of ground-water level are made, either continuously by recorder, or periodically by hand. In addition, various chemical or physical parameters may be obtained, usually on a periodic basis.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Hydrologic Bench-Mark Network is a network in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture. Conversion of chemical concentrations in Mg/L to milliequivalents per liter can be done by using the factors in table 4.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Table 4. Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter.

<u>Ion</u>	<u>Multiply by</u>	<u>Ion</u>	<u>Multiply by</u>
Aluminum (Al+3)*.....	0.11119	Iodide (I-1).....	0.00788
Ammonia as NH ₄ +1.....	.05544	Iron (Fe+3).....	.05372
Barium (Ba+2).....	.01456	Lead (Pb+2).....	.00965
Bicarbonate (HCO ₃ -1)....	.01639	Lithium (Li+1).....	.14411
Bromide (Br-1).....	.01251	Magnesium (Mg+2)....	.08226
Calcium (Ca+2).....	.04990	Manganese (Mn+2)*....	.03640
Carbonate (CO ₃ -2).....	.03333	Nickel (Ni+2).....	.03406
Chloride (Cl-1).....	.02821	Nitrate (NO ₃ -1).....	.01613
Chromium (Cr+6)*.....	.11539	Nitrite (NO ₂ -1).....	.02174
Cobalt (Co+2)*.....	.03394	Phosphate (PO ₄ -3)....	.03159
Copper (Cu+2)*.....	.03148	Potassium (K+1).....	.02557
Cyanide (CN-1).....	.03844	Sodium (Na+1).....	.04350
Fluoride (F-1).....	.05264	Strontium (Sr+2).....	.02283
Hydrogen (H+1).....	.99209	Sulfate (SO ₄ -2).....	.02082
Hydroxide (OH-1).....	.05880	Zinc (Zn+2)*.....	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m²), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Particle-size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

<u>Classification</u>	<u>Size (mm)</u>	<u>Method of analysis</u>
Clay.....	0.00024 - 0.004	Sedimentation
Silt.....	.004 - .062	Sedimentation
Sand.....	.062 - 2.0	Sedimentation or sieve
Gravel....	2.0 - 64.0	Sieve

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [$\text{mg C}/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mg C}/(\text{m}^3 \cdot \text{time})$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [$\text{mgO}/(\text{m}^2 \cdot \text{time})$] for periphyton and macrophytes and [$\text{mgO}/(\text{m}^3 \cdot \text{time})$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentrations (mg/L) x discharge (ft³/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electric current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emerged or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. All areas shown are those for the stage when the planimeted map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....	Animal
Phylum.....	Arthropoda
Class.....	Insecta
Order.....	Ephemeroptera
Family.....	Ephemeridae
<u>Genus.....</u>	<u>Hexagenia</u>
<u>Species.....</u>	<u>Hexagenia limbata</u>

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table heading and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter by 0.00136.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1994

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Branch of Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

- 1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.
- 2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.
- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F. P. Haeni: USGS--TWRI Book 2, Chapter D2. 1988. 86 pages.
- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L.M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W. S. Keys: USGS--TWRI Book 2, Chapter E2. 1990. 150 pages.
- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W. E. Teasdale: USGS--TWRI Book 2, Chapter F1. 1989. 97 pages.
- 3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.
- 3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.
- 3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.
- 3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.
- 3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.
- 3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.
- 3-A7. *Stage measurement at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.
- 3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

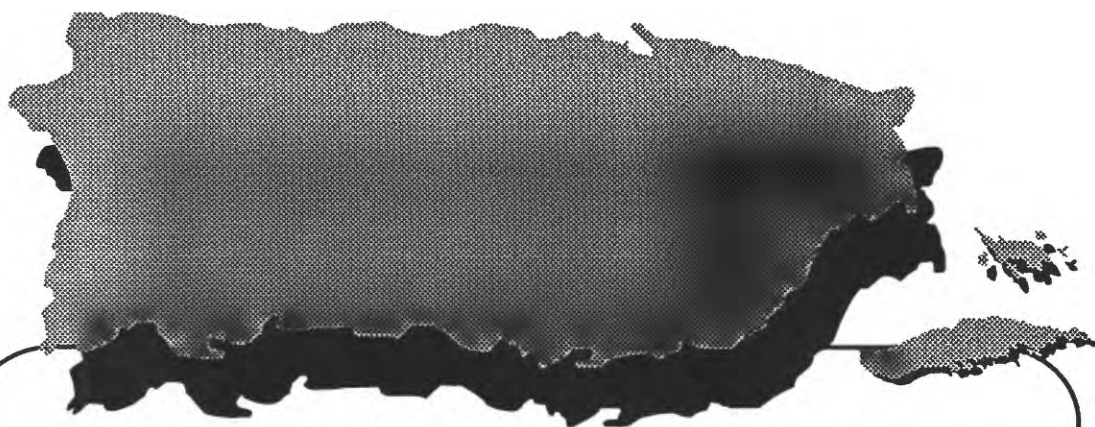
42 PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F. A. Kilpatrick and J. F. Wilson, Jr.: USGS--TWRI Book 3, Chapter A9. 1989. 27 pages.
- 3-A10. *Discharge ratings at gaging stations*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A10. 1984. 59 pages.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J. F. Wilson, Jr., E. D. Cobb, and F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A12. 1986. 34 pages.
- 3-A13. *Computation of continuous records of streamflow*, by E. J. Kennedy: USGS--TWRI Book 3, Chapter A13. 1983. 53 pages.
- 3-A14. *Use of flumes in measuring discharge*, by F. A. Kilpatrick and V. R. Schneider: USGS--TWRI Book 3, Chapter A14. 1983. 46 pages.
- 3-A15. *Computation of water-surface profiles in open channels*, by Jacob Davidian: USGS--TWRI Book 3, Chapter A15. 1984. 48 pages.
- 3-A16. *Measurement of discharge using tracers*, by F. A. Kilpatrick and E. D. Cobb: USGS--TWRI Book 3, Chapter A16. 1985. 52 pages.
- 3-A17. *Acoustic velocity meter systems*, by Antonius Laenen: USGS--TWRI Book 3, Chapter A17. 1985. 38 pages.
- 3-A18. *Determination of stream reaeration coefficients by use of tracers*, by F. A. Kilpatrick, R. E. Rathbun, Nobuhiro Yotsukura, G. W. Parker, and L. L. DeLong: USGS--TWRI Book 3, Chapter A18. 1989. 52 pages.
- 3-A19. *Levels at streamflow gaging stations*, by E.J. Kennedy: USGS--TWRI Book 3, Chapter A19. 1990. 31 pages.
- 3-A20. *Simulation of soluble waste transport and buildup in surface waters using tracers*, by F. A. Kilpatrick: USGS--TWRI Book 3, Chapter A20. 1993. 38 pages.
- 3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.
- 3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.
- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J. E. Reed: USGS--TWRI Book 3, Chapter B3. 1980. 106 pages.
- 3-B4. *Regression modeling of ground-water flow*, by R. L. Cooley and R. L. Naff: USGS--TWRI Book 3, Chapter B4. 1990. 232 pages.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow - Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R. L. Cooley: USGS--TWRI Book 3, Chapter B4. 1993. 8 pages.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems--An introduction*, by O. L. Franke, T. E. Reilly, and G. D. Bennett: USGS--TWRI Book 3, Chapter B5. 1987. 15 pages.
- 3-B6. *The principle of superposition and its application in ground-water hydraulics*, by T. E. Reilly, O. L. Franke, and G. D. Bennett: USGS--TWRI Book 3, Chapter B6. 1987. 28 pages.
- 3-B7. *Analytical solutions for one-, two-, and three-dimensional solute transport in ground-water systems with uniform flow*, by E. J. Wexler: USGS--TWRI Book 3, Chapter B7. 1992. 190 pages.
- 3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

- 3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.
- 4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.
- 4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.
- 4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.
- 4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.
- 4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.
- 4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.
- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L. C. Friedman, editors: USGS--TWRI Book 5, Chapter A1. 1989. 545 pages.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R. L. Wershaw, M. J. Fishman, R. R. Grabbe, and L. E. Lowe: USGS--TWRI Book 5, Chapter A3. 1987. 80 pages.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L. J. Britton and P. E. Greenson, editors: USGS--TWRI Book 5, Chapter A4. 1989. 363 pages.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.
- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L. C. Friedman and D. E. Erdmann: USGS--TWRI Book 5, Chapter A6. 1982. 181 pages.
- 5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.
- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M. G. McDonald and A. W. Harbaugh: USGS--TWRI Book 6, Chapter A1. 1988. 586 pages.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S. A. Leake and D. E. Prudic: USGS--TWRI Book 6, Chapter A2. 1991. 68 pages.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L. J. Torak: USGS--TWRI Book 6, Chapter A3. 1993. 136 pages.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R. L. Cooley: USGS--TWRI Book 6, Chapter A4. 1992. 108 pages.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L. J. Torak: USGS--TWRI Book 6, Chapter A5. 1993. 243 pages.

44 PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS--Continued

- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R. W. Schaffranek, R. A. Baltzer, and D. E. Goldberg: USGS--TWRI Book 7, Chapter C3. 1981. 110 pages.
- 8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.
- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J. D. Craig: USGS--TWRI Book 8, Chapter A2. 1983. 57 pages.
- 8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.



**Surface and Quality-of-Water
Records
for Puerto Rico**

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

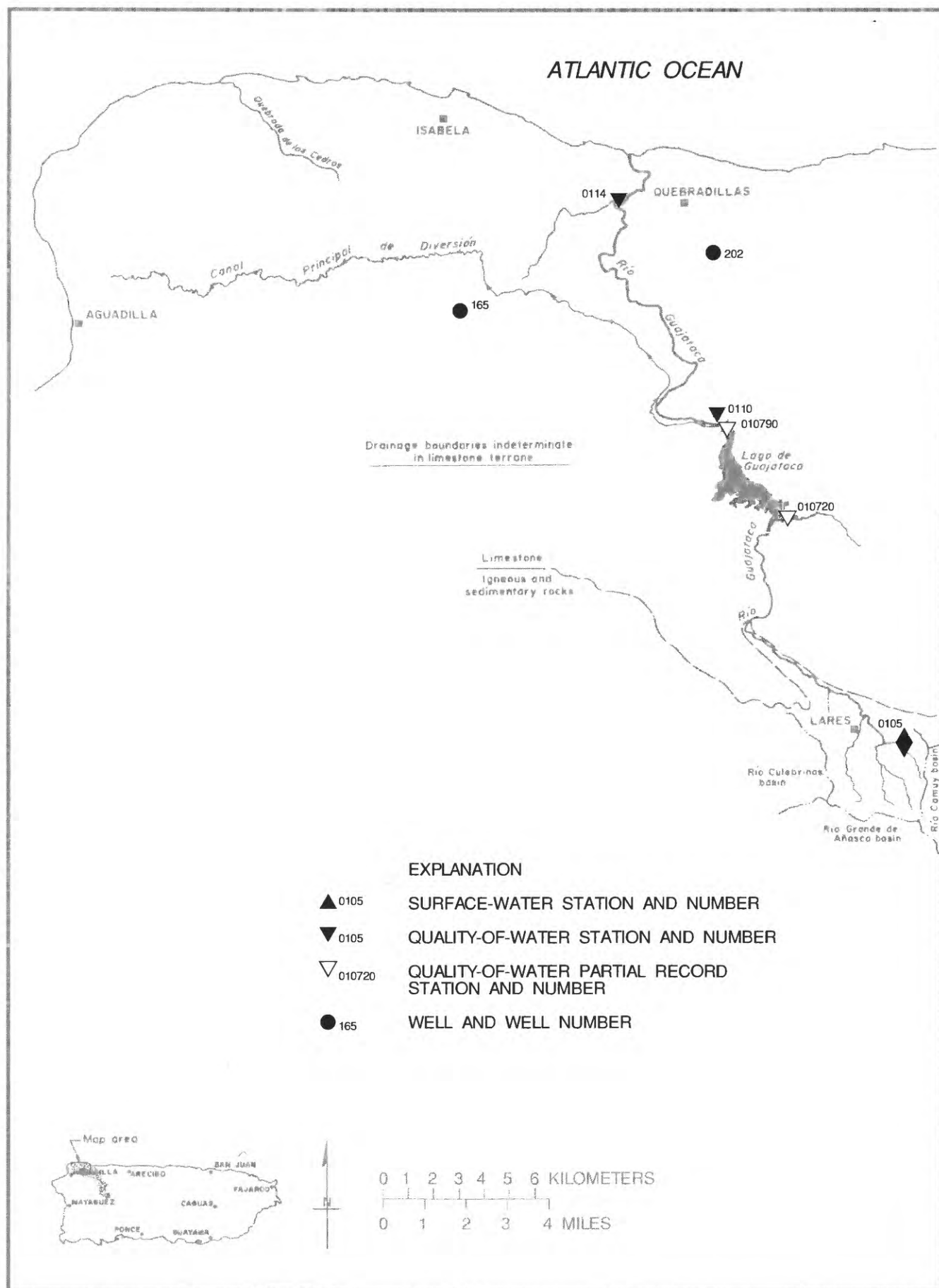


Figure 13.--Río Guajataca basin.

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

LOCATION.--Lat 18°18'01", long 66°52'24", Hydrologic Unit 21010001 at bridge on Highway 111, 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) east of Lares.

DRAINAGE AREA.--3.16 mi² (8.18 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (February to May 1971 and March 1974 to November 1989, monthly measurements only), December 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 935 ft (285 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.1	3.7	2.6	1.8	1.5	.81	.68	.94	8.4	15	1.2	3.9
2	25	3.8	2.3	2.0	1.1	.67	.82	.93	28	4.5	.73	4.2
3	5.1	3.6	2.3	2.0	1.2	.65	.91	2.2	10	4.6	.85	2.4
4	22	3.4	2.4	1.8	1.2	.64	.77	1.0	3.6	2.6	.93	9.9
5	21	12	10	1.6	1.1	.79	.74	.76	2.0	1.3	1.1	3.7
6	18	6.1	5.0	1.6	1.1	.99	1.3	2.5	1.7	1.6	11	2.3
7	9.6	3.5	2.3	1.7	1.1	1.0	1.2	1.2	1.5	5.8	28	2.1
8	8.9	5.8	2.3	1.6	1.2	.72	1.0	.91	.92	2.3	27	5.4
9	16	4.1	2.4	1.5	1.2	.69	1.0	.89	1.5	1.6	14	6.9
10	22	3.5	2.1	1.6	.91	.61	.99	2.0	1.7	1.4	5.2	3.2
11	9.1	3.1	2.1	1.7	1.0	.66	1.0	25	1.5	1.6	2.6	3.7
12	6.8	2.9	2.0	1.6	.90	1.5	.79	22	1.1	1.3	2.0	20
13	4.8	3.1	8.6	1.6	1.1	.81	.70	2.7	1.5	1.3	1.8	5.5
14	4.2	4.7	10	1.6	1.3	.63	.89	1.8	17	1.2	1.6	3.7
15	3.9	9.0	3.1	1.5	.88	.61	.80	5.4	9.2	1.1	1.8	2.7
16	9.4	8.1	1.8	1.6	.92	.57	.83	5.4	12	1.6	1.8	2.2
17	25	4.2	1.8	1.5	.69	.62	.89	37	4.6	1.1	2.3	2.0
18	5.4	3.6	2.3	1.5	.69	.94	3.3	7.5	2.0	1.1	2.2	2.0
19	4.9	3.0	30	1.6	.73	.73	1.7	2.3	1.6	.98	3.8	17
20	4.8	2.9	12	1.5	.76	.56	2.6	1.5	1.4	.98	14	7.5
21	4.7	2.8	4.9	1.4	.73	.90	1.5	1.3	1.2	.78	15	15
22	4.5	2.8	3.8	9.9	.83	.64	.94	1.2	1.4	.77	5.6	8.9
23	4.4	2.4	3.2	15	.73	.68	.82	1.1	2.0	.83	3.0	4.5
24	4.3	2.7	2.2	4.5	1.0	.70	.83	1.5	2.0	.88	8.5	19
25	4.7	2.6	2.1	1.7	.85	.71	.85	1.1	2.1	.79	8.3	4.9
26	19	2.5	2.2	1.4	.89	4.4	.79	1.1	2.1	.85	4.3	3.9
27	18	2.6	2.1	1.2	1.2	1.3	.94	1.3	1.9	.85	19	19
28	6.4	2.6	2.1	1.2	1.1	.61	1.2	1.5	2.7	1.0	7.2	6.0
29	4.9	10	2.0	1.2	---	1.5	.99	1.5	2.6	.76	3.4	35
30	4.1	4.2	2.0	1.2	---	1.1	.97	1.1	2.4	.95	2.5	14
31	3.9	---	2.0	1.3	---	.86	---	.97	---	.99	2.3	---
TOTAL	305.9	129.3	136.0	72.9	27.91	28.60	32.74	137.60	131.62	62.41	203.01	240.5
MEAN	9.87	4.31	4.39	2.35	1.00	.92	1.09	4.44	4.39	2.01	6.55	8.02
MAX	25	12	30	15	1.5	4.4	3.3	37	28	15	28	35
MIN	1.1	2.4	1.8	1.2	.69	.56	.68	.76	.92	.76	.73	2.0
AC-FT	607	256	270	145	55	57	65	273	261	124	403	477
CFSM	3.12	1.36	1.39	.74	.32	.29	.35	1.40	1.39	.64	2.07	2.54
IN.	3.60	1.52	1.60	.86	.33	.34	.39	1.62	1.55	.73	2.39	2.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

	MEAN	17.1	9.14	3.83	2.51	2.03	2.07	3.84	8.96	6.63	3.91	5.33	10.3
	MAX	33.7	16.7	7.31	6.83	5.37	6.38	7.63	12.8	9.73	9.85	9.88	15.7
	(WY)	1991	1971	1971	1971	1971	1971	1993	1993	1970	1969	1991	1990
	MIN	9.87	4.31	1.35	.66	.93	.92	1.09	3.86	3.18	2.01	3.34	5.95
	(WY)	1994	1994	1991	1991	1992	1994	1994	1992	1992	1994	1970	1993

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1969 - 1994

ANNUAL TOTAL	1937.57	1508.49	
ANNUAL MEAN	5.31	4.13	5.79
HIGHEST ANNUAL MEAN			8.05
LOWEST ANNUAL MEAN			4.13
HIGHEST DAILY MEAN	48	May 7	216
LOWEST DAILY MEAN	.76	Mar 8	.47
ANNUAL SEVEN-DAY MINIMUM	.81	Mar 19	.51
INSTANTANEOUS PEAK FLOW		1490	5300
INSTANTANEOUS PEAK STAGE		14.20	21.30
ANNUAL RUNOFF (AC-FT)	3840	2990	4190
ANNUAL RUNOFF (CFSM)	1.68	1.31	1.83
ANNUAL RUNOFF (INCHES)	22.81	17.76	24.89
10 PERCENT EXCEEDS	13	10	14
50 PERCENT EXCEEDS	2.9	2.0	3.2
90 PERCENT EXCEEDS	1.1	.79	.90

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anon, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA.--3.16 mi² (8.18 km²).

PERIOD OF RECORD.--Water years 1958-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
20...	1205	4.7	247	7.7	23.5	1.2	6.4	77	31	54000	5300
DEC 16...	1030	2.2	234	7.5	20.5	7.3	4.6	51	<10	4300	6600
MAR 1994											
01...	1030	0.76	242	6.6	20.5	3.0	6.8	77	<10	2000	2300
APR 19...	1130	1.4	208	7.4	23.0	3.0	7.8	93	11	2900	7400
JUN 28...	1310	2.2	235	7.8	25.0	1.9	8.4	104	12	3400	960
AUG 23...	1320	2.8	267	7.5	25.5	2.2	8.0	100	<10	4100	2500

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
20...	92	27	5.9	12	0.5	2.8	97	<0.5	8.4	11	0.10
DEC 16...	--	--	--	--	--	--	87	--	--	--	--
MAR 1994											
01...	--	--	--	--	--	--	94	--	--	--	--
APR 19...	86	24	6.3	11	0.5	2.4	78	<0.5	12	12	<0.10
JUN 28...	--	--	--	--	--	--	87	--	--	--	--
AUG 23...	110	32	6.2	12	0.5	2.8	110	--	14	11	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
20...	32	157	1.98	9	0.40	0.060	1	<100	10	<1	<1
DEC 16...	--	--	--	10	<0.20	0.040	--	--	--	--	--
MAR 1994				10	0.30	0.080	--	--	--	--	--
01...	--	--	--	10	0.30	0.080	--	--	--	--	--
APR 19...	28	142	0.55	12	--	--	<1	<100	20	<1	<1
JUN 28...	--	--	--	3	<0.20	0.070	--	--	--	--	--
AUG 23...	27	171	1.28	11	<0.20	0.050	--	--	--	--	--

K = non-ideal count

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GUAJATACA BASIN

51

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1958-64, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
20...	1330	55	307	7.2	25.5	0.90	1.0	12	11	K40	K17
DEC 09...	1220	70	299	7.2	26.0	0.50	1.4	17	<10	K60	K4
MAR 1994											
08...	0730	65	300	7.5	25.0	0.50	3.2	40	<10	2	2
APR 20...	1600	65	268	7.6	26.5	0.70	4.0	51	28	K2	<2
JUN 30...	0920	65	289	7.3	26.0	1.3	4.8	60	13	120	350
AUG 18...	0915	65	264	7.7	27.0	16	3.2	41	<10	200	220

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
20...	150	53	3.2	4.3	0.2	1.3	150	<0.5	7.4	6.0	0.20
DEC 09...	--	--	--	--	--	--	140	--	--	--	--
MAR 1994											
08...	--	--	--	--	--	--	140	--	--	--	--
APR 20...	130	46	4.0	6.5	0.2	2.3	130	<0.5	8.8	9.0	0.10
JUN 30...	--	--	--	--	--	--	130	--	--	--	--
AUG 18...	140	51	3.7	5.4	0.2	1.9	130	--	8.4	8.2	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
20...	6.6	172	25.5	4	0.50	0.040	1	<100	<10	<1	<1
DEC 09...	--	--	--	2	0.30	0.020	--	--	--	--	--
MAR 1994				8	0.30	<0.010	--	--	--	--	--
08...	--	--	--								
APR 20...	4.9	160	28.0	7	--	--	2	<100	10	<1	1
JUN 30...	--	--	--	4	0.70	0.030	--	--	--	--	--
AUG 18...	6.5	163	28.7	28	0.60	0.010	--	--	--	--	--

K = non-ideal count

RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GUAJATACA BASIN

53

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on highway 2, 1.6 mi (2.6 km) west of Quebradillas plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajataca.

DRAINAGE AREA.--Indeterminate

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
21...	1340	0.0	651	7.8	28.5	3.3	3.6	45	12	230	630
DEC											
10...	1040	0.0	1010	7.2	24.5	1.0	4.0	47	11	350	240
MAR 1994											
08...	1030	9.4	561	7.2	24.0	0.20	6.0	70	<10	26	57
MAY											
03...	0910	7.8	700	7.9	25.0	0.40	5.8	69	<10	230	K64
JUN											
30...	0750	7.6	480	7.6	25.0	0.40	5.0	59	<10	290	K10
AUG											
19...	0830	7.9	495	7.6	24.5	2.8	3.2	38	21	190	820

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
21...	220	71	9.6	44	1	2.8	200	<0.5	15	81	0.20
DEC											
10...	--	--	--	--	--	--	200	--	--	--	--
MAR 1994											
08...	--	--	--	--	--	--	210	--	--	--	--
MAY											
03...	250	83	10	22	0.6	1.2	230	<0.5	6.9	38	<0.10
JUN											
30...	--	--	--	--	--	--	220	--	--	--	--
AUG											
19...	230	79	8.9	18	0.5	1.3	200	--	7.2	29	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
21...	6.7	350	--	11	0.30	0.040	<1	<100	40	<1	<1
DEC											
10...	--	--	--	1	<0.20	0.020	--	--	--	--	--
MAR 1994											
08...	--	--	--	5	<0.20	<0.010	--	--	--	--	--
MAY											
03...	7.0	306	6.43	4	0.30	0.020	<1	<100	40	<1	2
JUN											
30...	--	--	--	<1	<0.20	0.020	--	--	--	--	--
AUG											
19...	7.0	271	5.73	4	<0.20	<0.010	--	--	--	--	--

K = non-ideal count

RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

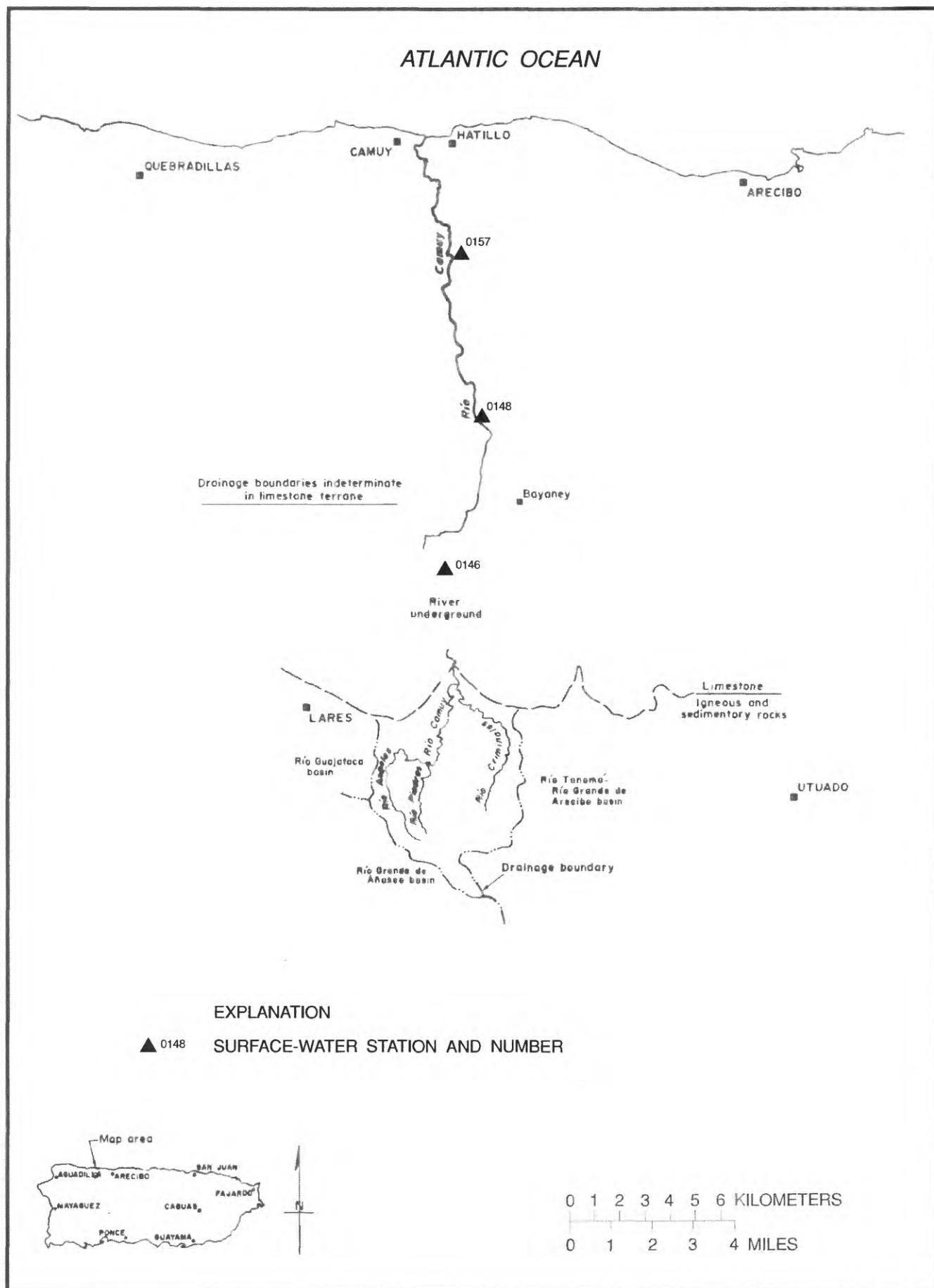


Figure 14.--Río Camuy basin.

RIO CAMUY BASIN

50014600 RIO CAMUY AT TRES PUEBLOS SINKHOLE, PR

LOCATION.--Lat 18°20'42", long 66°49'29", Hydrologic Unit 21010002, at Parque de las Cavernas del Río Camuy, 1.8 mi (2.9 km) southeast from Escuela Segunda Unidad de Santiago Palmer, 4.7 mi (7.6 km) west from Observatorio de Arecibo and 4.8 mi (7.7 km) northeast from Plaza de Lares.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 612.21 ft (186.602 m), above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	40	29	26	17	14	12	11	46	32	13	20
2	74	40	29	26	17	13	15	11	90	36	13	24
3	104	40	29	26	17	13	17	11	75	34	12	21
4	108	38	28	26	17	13	13	12	49	27	12	21
5	112	41	30	25	17	12	13	10	39	22	13	25
6	112	58	39	25	17	14	13	13	35	20	31	21
7	84	41	29	25	16	17	12	16	33	21	79	19
8	69	43	28	24	16	13	12	12	33	26	83	24
9	76	45	27	24	16	12	12	10	32	20	82	31
10	84	41	27	25	16	12	12	11	32	18	43	21
11	76	39	26	25	15	12	12	40	35	18	30	19
12	68	38	26	25	15	12	12	66	31	18	25	38
13	60	38	28	24	15	13	12	52	29	17	23	41
14	55	41	38	23	15	12	12	31	37	16	21	26
15	52	66	38	23	15	12	12	32	50	16	21	27
16	51	83	28	23	15	12	12	124	50	16	19	21
17	58	60	27	23	15	12	13	195	48	16	19	20
18	59	47	28	23	15	11	13	111	37	15	18	20
19	51	40	31	22	14	12	15	57	32	16	18	25
20	47	37	51	22	14	12	12	34	30	15	20	48
21	45	35	32	22	14	12	13	29	29	15	22	129
22	43	34	30	31	14	12	12	27	27	14	45	116
23	49	33	30	40	14	13	12	25	25	14	23	66
24	46	32	29	28	13	12	12	24	23	14	22	76
25	43	31	28	21	12	12	12	23	22	14	30	70
26	54	31	28	20	15	14	11	23	22	13	22	59
27	e63	32	27	20	19	15	12	22	20	13	21	65
28	75	32	27	19	15	13	12	22	19	13	22	55
29	e55	31	27	19	---	13	12	22	20	13	23	77
30	45	36	27	19	---	16	11	22	18	14	19	112
31	42	---	26	18	---	14	---	21	---	13	18	---
TOTAL	2016	1243	927	742	430	399	375	1119	1068	569	862	1337
MEAN	65.0	41.4	29.9	23.9	15.4	12.9	12.5	36.1	35.6	18.4	27.8	44.6
MAX	112	83	51	40	19	17	17	195	90	36	83	129
MIN	42	31	26	18	12	11	11	10	18	13	12	19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
MEAN	81.8	50.0	33.7	25.2	21.3	21.7	36.6	66.5	44.8	30.3	40.6	62.3
MAX	112	55.9	42.6	27.7	27.0	34.4	47.3	80.7	70.3	43.1	66.0	83.3
(WY)	1991	1992	1993	1993	1991	1992	1993	1992	1992	1991	1991	1993
MIN	64.5	41.4	29.8	21.6	15.4	12.9	12.5	36.1	32.1	18.4	24.7	44.6
(WY)	1993	1994	1991	1991	1994	1994	1994	1994	1991	1994	1993	1994

SUMMARY STATISTICS

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	11087		
ANNUAL MEAN	30.4	43.4	
HIGHEST ANNUAL MEAN		49.2	1992
LOWEST ANNUAL MEAN		30.4	1994
HIGHEST DAILY MEAN	195	May 17	299 Sep 7 1993
LOWEST DAILY MEAN	10	May 5	10 May 5 1994
ANNUAL SEVEN-DAY MINIMUM	11	Apr 29	11 Apr 29 1994
INSTANTANEOUS PEAK FLOW	781	May 17	1030 Oct 31 1991
INSTANTANEOUS PEAK STAGE	11.26	May 17	12.42 Oct 31 1991
10 PERCENT EXCEEDS	58		79
50 PERCENT EXCEEDS	23		33
90 PERCENT EXCEEDS	12		16

e Estimated

RIO CAMUY BASIN

57

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from mouth.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e210	59	61	40	34	33	29	26	63	42	29	29
2	e180	58	53	40	35	31	31	25	155	118	28	33
3	e290	57	52	38	34	29	36	25	147	105	26	37
4	e210	55	51	38	34	27	28	26	78	67	26	31
5	e330	100	51	36	34	26	27	37	61	50	26	41
6	e290	124	e58	35	33	27	26	36	55	41	40	36
7	e200	72	58	35	32	36	26	54	43	40	176	29
8	e115	78	51	35	32	26	24	34	38	53	178	31
9	e200	84	49	34	32	22	24	31	39	39	164	74
10	e340	68	50	34	31	21	24	32	36	35	73	42
11	e260	62	51	34	31	20	23	76	41	34	49	32
12	e310	58	50	35	31	20	26	157	37	34	43	49
13	e220	57	49	33	31	21	27	128	35	32	33	83
14	e100	68	61	32	31	20	27	79	38	31	30	46
15	e84	171	e84	32	31	19	27	109	83	30	28	49
16	e76	304	55	31	30	18	27	349	96	30	27	37
17	e80	171	51	31	30	17	26	562	73	30	26	28
18	e120	123	50	31	29	16	27	271	56	29	26	27
19	e160	100	49	31	29	17	33	134	48	30	26	26
20	e72	90	e95	30	29	16	27	73	39	28	28	85
21	e66	82	55	32	29	20	29	63	36	28	30	250
22	e62	76	52	31	29	16	27	53	34	28	60	288
23	e64	71	51	e85	30	19	26	46	31	27	45	153
24	e190	70	49	e62	29	21	26	41	30	27	31	157
25	e130	68	48	48	30	22	26	40	30	28	49	191
26	e72	65	46	41	31	24	26	35	29	28	37	149
27	108	62	46	39	50	31	30	32	29	28	29	128
28	119	67	43	38	38	25	42	32	28	27	32	114
29	100	64	43	37	---	25	34	32	30	28	39	133
30	69	67	43	36	---	37	28	32	32	30	29	253
31	62	---	41	35	---	33	---	31	---	27	27	---
TOTAL	4889	2651	1646	1169	899	735	839	2701	1570	1204	1490	2661
MEAN	158	88.4	53.1	37.7	32.1	23.7	28.0	87.1	52.3	38.8	48.1	88.7
MAX	340	304	95	85	50	37	42	562	155	118	178	288
MIN	62	55	41	30	29	16	23	25	28	27	26	26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

MEAN	203	119	68.6	48.6	45.0	45.3	103	183	101	76.0	87.6	147
MAX	427	244	97.4	80.9	78.3	66.0	202	624	141	109	135	273
(WY)	1986	1986	1988	1988	1987	1992	1986	1986	1992	1989	1989	1984
MIN	81.6	74.9	49.7	33.1	29.2	23.7	28.0	43.2	52.3	38.8	47.9	88.7
(WY)	1988	1989	1989	1991	1992	1994	1994	1989	1994	1994	1993	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1984 - 1994
ANNUAL TOTAL	34481	22454	
ANNUAL MEAN	94.5	61.5	102
HIGHEST ANNUAL MEAN			179
LOWEST ANNUAL MEAN			61.5
HIGHEST DAILY MEAN	893	Sep 7	562 May 17
LOWEST DAILY MEAN	31	Mar 7	16 Mar 18
ANNUAL SEVEN-DAY MINIMUM	32	Mar 3	17 Mar 16
INSTANTANEOUS PEAK FLOW			1800 May 17
INSTANTANEOUS PEAK STAGE			10.92 May 17
INSTANTANEOUS LOW FLOW			15 Mar 22
10 PERCENT EXCEEDS	195	129	197
50 PERCENT EXCEEDS	62	37	67
90 PERCENT EXCEEDS	36	26	33

e Estimated

RIO CAMUY BASIN

50015700 RIO CAMUY NEAR HATILLO, PR

LOCATION.--Lat 18°27'44", long 66°49'56", Hydrologic Unit 21010002, 1.8 mi (2.9 km) southwest of Hatillo plaza, and 1.8 mi (2.9 km) southeast of Camuy plaza, 1.2 mi (1.9 km) south of Planta de Purificación, and 3.3 mi (5.5 km) upstream from Atlantic Ocean.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 13 ft (4 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	66	69	54	42	35	32	33	37	39	30	31
2	181	63	60	54	41	34	33	28	e200	109	31	36
3	316	62	59	53	41	33	38	27	e160	200	28	42
4	215	60	58	52	40	32	32	29	e94	76	28	33
5	348	95	58	51	40	32	31	28	e70	57	28	43
6	290	224	75	51	39	35	30	26	e62	45	34	41
7	187	92	66	50	38	53	29	41	e48	42	164	34
8	118	82	59	50	38	37	27	32	e42	53	237	32
9	238	132	56	49	37	33	27	28	e42	43	265	123
10	375	80	57	49	36	32	27	28	e40	38	116	51
11	272	69	55	51	36	31	27	36	e45	36	61	35
12	347	66	54	52	35	32	28	181	e42	34	53	30
13	230	63	53	49	35	33	28	183	e39	34	41	120
14	113	76	63	49	34	31	28	110	e44	34	38	55
15	91	291	87	48	35	31	28	195	69	34	35	63
16	82	678	58	48	33	31	28	528	133	34	33	51
17	88	319	56	48	32	31	27	1050	79	34	32	36
18	131	168	56	48	32	30	28	633	61	31	31	33
19	175	118	55	47	33	30	33	201	52	32	31	31
20	82	99	110	47	32	30	28	95	42	31	33	120
21	73	87	68	47	32	35	29	78	40	31	34	192
22	68	81	63	48	32	31	28	64	39	31	64	595
23	69	76	61	94	32	32	27	54	38	30	58	202
24	220	75	60	74	32	31	27	47	34	29	33	183
25	139	72	58	58	34	30	27	44	35	30	56	247
26	77	67	57	51	35	29	27	42	34	29	46	244
27	143	65	56	48	51	37	32	39	34	28	34	133
28	145	96	55	47	41	31	53	39	32	28	36	164
29	156	72	55	45	---	30	44	39	34	30	44	91
30	81	74	54	45	---	38	39	39	34	32	33	441
31	71	---	54	44	---	37	---	37	---	30	30	---
TOTAL	5348	3668	1905	1601	1018	1027	922	4034	1755	1364	1817	3532
MEAN	173	122	61.5	51.6	36.4	33.1	30.7	130	58.5	44.0	58.6	118
MAX	375	678	110	94	51	53	53	1050	200	200	265	595
MIN	68	60	53	44	32	29	27	26	32	28	28	30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

MEAN	336	180	90.2	62.7	63.7	64.0	189	360	138	100	112	203
MAX	735	439	176	131	134	88.1	411	1586	218	161	180	376
(WY)	1986	1986	1993	1988	1987	1992	1986	1986	1992	1990	1989	1989
MIN	116	115	51.4	46.2	34.1	33.1	30.7	59.5	58.5	44.0	54.8	117
(WY)	1988	1989	1992	1989	1992	1994	1994	1989	1994	1994	1993	1992

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1984 - 1994

ANNUAL TOTAL	51971	27991	
ANNUAL MEAN	142	76.7	159
HIGHEST ANNUAL MEAN			335
LOWEST ANNUAL MEAN			76.7
HIGHEST DAILY MEAN	1850	Apr 29	8150
LOWEST DAILY MEAN	34	Mar 23	25
ANNUAL SEVEN-DAY MINIMUM	35	Mar 20	27
INSTANTANEOUS PEAK FLOW			2910
INSTANTANEOUS PEAK STAGE			15.61
INSTANTANEOUS LOW FLOW			25
10 PERCENT EXCEEDS	303		171
50 PERCENT EXCEEDS	75		45
90 PERCENT EXCEEDS	43		30

e Estimated

RIO GRANDE DE ARECIBO BASIN

50020100 LAGO GARZAS NEAR ADJUNTAS, PR

LOCATION.--Lat 18°08'20", long 66°44'29", Hydrologic Unit 21010002, in power gate tower of Garzas Dam on Río Vacas, 1.7 mi (2.7 km) upstream from Río Garzas, and 2.2 mi (3.5 km) southwest of Adjuntas.

DRAINAGE AREA.--15.6 mi² (40.4 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to May 1989, March 1993 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) above mean sea level. Prior to May 25, 1988 at datum 2,376.80 ft (724.449 m), May 25 to July 13, 1988 at datum 2,338.08 ft (712.647 m), July 14, 1988 to May 25, 1989 at datum 2,337.82 ft (712.560 m) above mean sea level.

REMARKS.--Lake is formed by earthfill dam completed in 1943. Outflow from lake controlled by vertical-lift sluice gate and fixed-crest concrete spillway. Spillway elevation, 2,415.00 ft (736.09 m). Lake is used for irrigation and power production. Operated by P.R. Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,417.66 ft (736.903 m), May 27, 1993; minimum elevation, 2,364.79 ft (720.788 m), Aug. 23, 1988.

EXTREMES OBSERVED FOR WATER YEARS 1989, 1993.--Water Year 1989: Maximum elevation 2,414.76 ft (736.019 m), Jan. 23; minimum elevation, 2,365.84 ft (721.108 m), May 2.

Water Year 1994: Maximum elevation 2,415.54 ft (736.256 m), Oct. 07; minimum elevation, 2,378.47 ft (724.958 m), July 19.

Capacity table
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,364	660	2,415	4,082
2,382	1,500	2,418	4,411
2,394	2,250		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2414.80	2414.50	2412.55	A	2403.59	2400.45	2395.79	2392.77	2387.44	2382.88	A	A
2	2414.82	2414.47	2412.44	A	2403.42	2400.65	2395.63	2392.62	2388.07	2382.66	A	A
3	2414.86	2414.53	2412.35	2408.56	2403.19	2400.75	2395.49	2392.44	2388.06	2382.51	A	A
4	2414.81	2414.49	2412.24	2408.40	2402.99	2400.80	2395.34	2392.29	2387.91	2382.31	A	A
5	2414.79	2414.46	2412.14	2408.25	2402.81	2400.89	2395.19	2392.18	2387.73	2382.08	A	A
6	2414.81	2414.40	2411.99	2408.08	2402.61	2400.97	2395.03	2392.02	2387.56	2381.85	A	A
7	2414.90	2414.34	2411.88	2407.92	2402.41	2400.78	2394.95	2391.86	2387.37	2381.65	A	A
8	2414.81	2414.28	2411.76	2407.76	2402.17	2400.52	2394.81	2391.69	2387.17	2381.46	A	A
9	2414.79	2414.22	2411.66	2407.60	2401.95	2400.30	2394.65	2391.52	2386.96	2381.24	A	A
10	2414.78	2414.15	2411.54	2407.43	2401.74	2400.13	2394.68	2391.45	2386.65	2380.87	A	A
11	2414.78	2414.13	2411.42	2407.28	2401.52	2399.95	2394.71	2391.29	2386.35	2380.68	A	A
12	2414.78	2414.05	2411.30	2407.09	2401.31	2399.77	2394.63	2391.12	2386.04	2380.47	A	A
13	2414.77	2413.98	2411.24	2406.92	2401.07	2399.60	2394.49	2390.97	2385.71	2380.22	A	A
14	2414.77	2413.91	2411.15	2406.77	2400.87	2399.40	2394.49	2390.81	2385.52	2379.90	A	A
15	2414.77	2413.84	2411.02	2406.59	2400.67	2399.21	2394.69	2390.65	2385.41	2379.69	A	A
16	2414.82	2413.80	2410.90	2406.43	2400.45	2399.00	2394.62	2390.50	2385.30	2379.43	A	A
17	2414.79	2413.73	2410.77	2406.25	2400.21	2398.79	2394.51	2390.31	2385.19	2379.05	A	A
18	2414.77	2413.66	2410.65	2406.06	2400.00	2398.59	2394.39	2390.12	2385.08	2378.60	A	A
19	2414.77	2413.60	2410.52	2405.88	2400.00	2398.39	2394.25	2389.95	2384.97	A	A	A
20	2414.78	2413.53	2410.55	2405.71	2400.00	2398.18	2394.10	2389.75	2384.86	A	A	A
21	2414.70	2413.45	A	2405.55	2400.01	2397.97	2393.95	2389.61	2384.75	A	A	A
22	2414.64	2413.37	A	2405.38	2399.98	2397.75	2393.81	2389.41	2384.51	A	A	A
23	2414.69	2413.29	A	2405.27	2400.00	2397.53	2393.65	2389.22	2384.29	A	A	A
24	2414.71	2413.18	A	2405.08	2399.98	2397.31	2393.50	2389.01	2384.06	A	A	A
25	2414.62	2413.10	A	2404.91	2399.98	2397.10	2393.36	2388.82	2383.95	A	A	A
26	2414.58	2413.01	A	2404.72	2399.95	2396.87	2393.19	2388.62	2383.74	A	A	A
27	2414.55	2412.92	A	2404.53	2399.93	2396.66	2393.32	2388.44	2383.64	A	A	A
28	2414.66	2412.83	A	2404.35	2400.09	2396.44	2393.21	2388.25	2383.47	A	A	A
29	2414.60	2412.74	A	2404.16	---	2396.25	2393.07	2388.04	2383.25	A	A	A
30	2414.56	2412.64	A	2403.96	---	2396.09	2392.92	2387.84	2383.12	A	A	A
31	2414.52	---	2410.46	2403.75	---	2395.93	---	2387.64	---	A	A	---
MEAN	2414.74	2413.75	---	---	2401.17	2398.81	2394.35	2390.36	2385.60	---	---	---
MAX	2414.90	2414.53	---	---	2403.59	2400.97	2395.79	2392.77	2388.07	---	---	---
MIN	2414.52	2412.64	---	---	2399.93	2395.93	2392.92	2387.64	2383.12	---	---	---

A No gage-height record

WATER-QUALITY RECORDS

LOCATION.--Lat 18°10'54", long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.

DRAINAGE AREA.--12.7 mi² (32.9 km²) this does not include 6.0 mi² (15.6 km²) above Lago Garzas.

PERIOD OF RECORD.--Water years 1969-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
28...	1220	18	289	8.2	26.0	0.70	5.9	75	13	K1000	260
DEC											
14...	1045	11	331	8.0	22.5	1.5	5.4	64	<10	2700	K1200
FEB 1994											
09...	1040	8.7	508	7.9	21.5	0.60	2.8	33	<10	240	410
APR											
13...	1455	5.6	384	7.8	27.0	0.60	8.2	108	<10	K660	K180
JUL											
06...	1105	6.0	900	7.2	25.0	1.3	8.2	104	32	K10000	K71000
AUG											
16...	0930	11	420	7.6	22.5	0.50	7.8	94	<10	2500	350

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
28...	110	30	9.3	18	0.7	1.8	110	0.6	8.8	20	0.10
DEC											
14...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
09...	--	--	--	--	--	--	120	--	--	--	--
APR											
13...	140	36	11	27	1	2.2	130	0.6	11	46	<0.10
JUL											
06...	--	--	--	--	--	--	130	--	--	--	--
AUG											
16...	140	36	12	43	2	2.2	120	--	15	69	0.10

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
28...	32	186	9.29	5	0.20	0.070	<1	<100	10	<1	<1
DEC											
14...	--	--	--	1	<0.20	0.120	--	--	--	--	--
FEB 1994											
09...	--	--	--	5	0.40	0.280	--	--	--	--	--
APR											
13...	32	243	3.70	4	--	--	<1	<100	20	<1	<1
JUL											
06...	--	--	--	10	0.60	0.220	--	--	--	--	--
AUG											
16...	32	281	8.19	8	--	--	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NR ADJUNTAS, PR--CONTINUED

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'11", long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado plaza.

DRAINAGE AREA.--66.0 mi² (170.9 km²) this excludes 6.0 mi² (15.5 km²) upstream from Lago Garzas to Río Guayanés in the Río Tallaboa basin.

PERIOD OF RECORD.--Water years 1959-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
18...	1030	93	245	7.8	25.0	28	4.6	55	<10	K16000	47000
DEC											
07...	1020	38	286	8.0	23.0	1.3	8.2	95	12	470	K140
FEB 1994											
07...	0840	30	308	7.8	20.0	0.60	5.0	55	<10	740	170
APR											
05...	1055	30	290	7.9	25.0	--	8.6	97	--	26000	K220
JUN											
23...	1250	18	288	8.2	30.0	1.0	8.8	86	<10	450	K73
AUG											
08...	1100	19	310	7.5	26.5	7.5	8.1	99	19	2000	330

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
18...	95	26	7.2	12	0.5	2.4	85	<0.5	16	14	0.10
DEC											
07...	--	--	--	--	--	--	98	--	--	--	--
FEB 1994											
07...	--	--	--	--	--	--	100	--	--	--	--
APR											
05...	92	29	4.8	11	0.6	2.1	93	<0.5	6.0	10	0.10
JUN											
23...	--	--	--	--	--	--	100	--	--	--	--
AUG											
08...	110	30	8.5	18	0.7	1.8	100	--	24	20	<0.10

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS Cd)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS Cr)
OCT 1993											
18...	26	155	38.8	63	0.60	0.150	<1	<100	50	<1	<1
DEC											
07...	--	--	--	7	<0.20	0.120	--	--	--	--	--
FEB 1994											
07...	--	--	--	3	<0.20	0.150	--	--	--	--	--
APR											
05...	26	135	11.0	10	<0.20	0.140	<1	<100	<10	<1	<1
JUN											
23...	--	--	--	4	0.20	0.130	--	--	--	--	--
AUG											
08...	27	189	9.50	27	0.40	0.150	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE ARECIBO BASIN

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION.--Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA.--9.25 mi² (23.96 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	11	7.4	6.1	4.0	13	3.5	4.1	3.6	4.4	2.9	4.9
2	37	10	7.1	6.1	4.0	6.2	4.0	3.8	e607	3.3	2.9	4.7
3	24	10	7.1	6.0	4.0	5.0	4.0	3.6	e179	3.1	2.6	4.8
4	111	9.5	7.1	5.7	4.0	4.4	4.0	3.6	e57	3.1	2.6	3.9
5	38	9.3	7.1	5.6	4.0	4.4	4.2	3.6	e33	3.1	2.8	3.6
6	21	9.1	7.1	5.5	3.9	4.5	7.0	5.8	e23	3.1	3.1	3.5
7	18	8.8	6.7	5.4	3.8	4.9	5.8	6.9	e19	3.3	4.6	3.5
8	16	8.3	6.6	5.2	3.8	4.4	8.5	4.7	e16	3.1	16	3.3
9	14	8.3	6.4	5.1	3.6	4.1	4.7	4.1	e13	2.9	9.9	3.3
10	13	8.3	6.3	5.1	3.6	5.2	3.8	4.9	e12	2.7	4.5	3.3
11	13	8.2	6.1	5.4	3.6	4.5	4.0	26	e9.8	2.7	3.6	4.8
12	19	7.9	6.1	5.5	3.6	5.7	5.8	18	e8.6	2.7	3.2	4.3
13	15	8.1	31	5.1	3.6	9.9	4.4	7.2	e7.4	2.6	3.0	3.4
14	12	8.8	15	5.1	3.6	5.4	4.5	71	e6.2	2.5	2.9	3.2
15	11	14	13	4.9	4.8	5.2	4.6	27	e5.1	2.5	3.1	3.1
16	45	21	8.2	4.7	3.9	5.1	4.5	9.2	5.2	2.5	2.8	3.0
17	33	14	7.6	4.8	3.7	4.3	5.2	16	4.8	2.5	2.7	3.6
18	24	13	7.8	4.9	3.6	4.1	5.4	9.3	5.0	2.9	2.6	5.1
19	21	11	8.1	4.7	3.6	4.0	4.2	7.5	4.7	3.7	9.2	17
20	16	10	8.4	4.9	5.3	3.9	3.9	5.8	4.5	2.9	10	43
21	13	12	7.3	4.9	4.2	3.8	4.6	5.2	4.3	2.7	3.9	54
22	12	10	7.1	4.9	3.9	3.8	4.7	4.7	4.1	2.6	3.2	24
23	25	9.6	7.1	4.9	4.1	3.8	4.3	4.5	3.9	2.6	3.0	9.4
24	16	9.3	6.7	7.9	4.1	3.8	4.0	4.0	3.8	2.6	2.9	30
25	13	8.6	6.6	5.5	3.9	3.7	5.0	3.8	3.7	2.6	5.2	17
26	13	8.0	6.3	4.6	3.7	3.6	4.7	3.8	3.6	2.5	3.5	10
27	54	7.9	6.1	4.3	3.9	3.6	31	3.8	3.6	2.3	3.1	9.7
28	24	8.8	6.5	4.4	25	3.6	14	5.3	3.8	2.4	149	6.8
29	16	9.3	6.6	4.2	---	3.5	5.6	6.7	3.8	2.5	23	5.9
30	13	8.0	6.4	4.1	---	3.5	4.6	4.2	4.6	2.6	7.5	29
31	11	---	6.1	4.1	---	3.5	---	3.9	---	2.6	5.2	---
TOTAL	736	300.1	253.0	159.6	130.8	148.4	178.5	292.0	1063.1	87.6	304.5	325.1
MEAN	23.7	10.0	8.16	5.15	4.67	4.79	5.95	9.42	35.4	2.83	9.82	10.8
MAX	111	21	31	7.9	25	13	31	71	607	4.4	149	54
MIN	11	7.9	6.1	4.1	3.6	3.5	3.5	3.6	3.6	2.3	2.6	3.0
AC-FT	1460	595	502	317	259	294	354	579	2110	174	604	645
CFSM	2.57	1.08	.88	.56	.51	.52	.64	1.02	3.83	.31	1.06	1.17
IN.	2.96	1.21	1.02	.64	.53	.60	.72	1.17	4.28	.35	1.22	1.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

	MEAN	38.4	24.0	13.4	18.8	10.8	9.69	21.7	29.7	22.9	11.5	15.5	23.0
MAX	70.5	40.0	22.7	48.1	16.0	13.0	46.4	60.5	35.4	19.5	21.6	45.2	
(WY)	1991	1991	1993	1992	1993	1991	1993	1993	1994	1993	1992	1990	
MIN	11.6	10.0	8.07	5.15	4.67	4.79	5.95	5.35	10.1	2.83	9.82	10.8	
(WY)	1992	1994	1992	1994	1994	1994	1994	1990	1991	1994	1994	1994	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1989 - 1994
ANNUAL TOTAL	8461.3	3978.7	
ANNUAL MEAN	23.2	10.9	20.0
HIGHEST ANNUAL MEAN			29.7
LOWEST ANNUAL MEAN			10.9
HIGHEST DAILY MEAN	390	607	607
LOWEST DAILY MEAN	6.1	2.3	2.3
ANNUAL SEVEN-DAY MINIMUM	6.4	2.5	2.5
INSTANTANEOUS PEAK FLOW		5900	5900
INSTANTANEOUS PEAK STAGE		13.92	13.92
INSTANTANEOUS LOW FLOW		2.1	2.1
ANNUAL RUNOFF (AC-FT)	16780	7890	14490
ANNUAL RUNOFF (CFSM)	2.51	1.18	2.16
ANNUAL RUNOFF (INCHES)	34.03	16.00	29.37
10 PERCENT EXCEEDS	40	17	38
50 PERCENT EXCEEDS	14	4.9	11
90 PERCENT EXCEEDS	7.8	3.1	4.3

e Estimated

RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°13'26", long 66°38'22", 300 ft (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya plaza.

DRAINAGE AREA.--40.4 mi² (104.6 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
28...	0955	73	166	7.7	23.0	120	5.2	61	22	27000	K17000
DEC											
14...	0820	41	169	7.7	20.5	23	4.6	51	11	17000	23000
FEB 1994											
09...	0825	14	265	8.0	22.0	0.80	3.0	34	<10	210	190
APR											
13...	1200	20	268	7.8	24.5	--	8.8	108	--	200	620
JUL											
06...	0900	8.3	255	7.9	26.0	0.50	8.6	108	<10	210	K160
AUG											
16...	1200	7.6	254	7.4	28.0	0.30	8.2	107	<10	K20	K40

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
28...	59	15	5.3	8.9	0.5	2.1	62	<0.5	10	8.2	0.10
DEC											
14...	--	--	--	--	--	--	57	--	--	--	--
FEB 1994											
09...	--	--	--	--	--	--	92	--	--	--	--
APR											
13...	--	--	--	--	--	--	85	<0.5	--	--	--
JUL											
06...	--	--	--	--	--	--	85	--	--	--	--
AUG											
16...	93	25	7.5	17	0.8	1.4	82	--	21	16	0.10

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
28...	22	109	21.5	174	0.30	0.090	<1	100	10	<1	2
DEC											
14...	--	--	--	43	0.40	0.150	--	--	--	--	--
FEB 1994											
09...	--	--	--	8	0.40	0.110	--	--	--	--	--
APR											
13...	--	--	--	--	--	--	<1	<100	20	<1	<1
JUL											
06...	--	--	--	2	<0.20	0.090	--	--	--	--	--
AUG											
16...	23	160	3.31	6	--	--	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE ARECIBO BASIN

50026140 LAGO CAONILLAS AT CAONILLAS, PR

LOCATION.--Lat 18°16'43", long 66°39'24", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.9 mi (4.7 km) northeast of Plaza de Utuado, 0.3 mi (0.6 km) west from Iglesia Santa María del Monte Carmelo, and 1.8 mi (3.0 km) northwest from Hacienda Carbonell.

DRAINAGE AREA.--48.4 mi² (125.4 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1991 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Caonillas was completed in 1948. The dam is a concrete gravity structure with a total length of 815 ft (248 m), a maximum height of 235 ft (72 m), and a maximum base width of 195 ft (59 m). Nonoverflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hydroelectric Project, and provides 49,000 acre-feet (60 hm³) of usable storage for power generation at Caonillas Power Plant No. 1 located 2.5 mi (4.0 km) downstream from the dam. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 825.39 ft (251.58 m), June 7, 1993; minimum elevation, 774.30 ft (226.86 m), July 13, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 796.47 ft (242.76 m), Oct. 10; minimum elevation, 744.30 ft (226.86 m), July 13.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet				Contents, in acre-feet			Elevation, in feet			Contents, in acre-feet		
705				0			800			27,982		
750				8,421			830			46,161		
ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994 DAILY OBSERVATION AT 24:00 VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	795.45	794.09	791.27	788.62	784.45	A	776.43	761.36	749.59	745.03	744.71	751.34
2	795.45	794.22	791.20	788.59	784.41	A	776.84	759.07	749.59	744.96	744.72	751.39
3	795.62	794.29	791.10	788.45	784.33	A	776.89	756.91	749.59	744.97	745.71	751.41
4	796.04	794.36	791.13	788.34	784.28	A	776.87	757.03	749.59	745.06	745.75	751.40
5	795.93	794.50	791.14	788.20	784.23	A	776.83	757.03	749.59	744.94	745.64	751.36
6	796.00	792.91	791.15	788.17	784.17	A	776.41	757.03	749.59	744.86	745.52	751.41
7	796.18	792.98	791.15	788.13	784.10	A	776.31	757.04	749.59	744.83	745.40	751.33
8	796.31	792.38	790.99	788.09	A	A	776.28	757.04	751.24	744.77	745.29	751.27
9	796.42	792.47	790.88	788.06	A	A	776.24	757.04	751.26	744.75	745.11	751.20
10	796.12	792.55	790.88	788.01	A	A	776.17	755.95	751.27	744.73	745.07	751.10
11	795.79	792.61	790.32	788.01	A	A	776.15	755.93	751.27	744.62	745.08	751.03
12	795.66	792.65	789.60	787.98	A	A	775.96	754.43	751.27	745.21	745.02	751.06
13	794.95	792.71	789.50	787.46	A	A	775.89	753.16	751.27	745.10	744.95	751.00
14	794.31	792.84	789.81	787.22	A	A	775.93	752.72	751.27	744.97	744.89	750.96
15	794.37	793.17	789.88	787.07	A	A	775.90	752.72	751.27	744.86	744.83	751.03
16	794.22	793.64	789.88	787.02	A	A	775.91	752.72	751.27	744.73	744.67	751.02
17	794.71	792.74	789.73	786.66	A	A	775.96	752.72	749.77	744.61	744.65	750.77
18	793.99	792.88	789.66	786.60	A	A	775.77	752.72	748.25	744.58	744.56	750.55
19	793.08	792.91	789.68	786.28	A	A	774.36	752.72	748.26	744.51	744.79	750.60
20	793.17	792.99	789.24	786.14	A	A	773.27	752.72	748.27	744.50	745.13	751.04
21	793.16	793.05	789.15	786.17	A	A	772.26	752.72	746.37	744.48	745.17	751.85
22	793.26	793.10	789.11	786.15	A	A	771.95	A	746.37	744.48	745.05	752.90
23	793.08	793.16	789.08	785.99	A	A	770.19	752.72	746.37	744.47	744.98	753.19
24	791.01	793.23	788.94	786.01	A	778.24	769.23	751.68	746.37	744.45	744.91	753.49
25	792.35	793.24	788.92	786.00	A	778.16	767.19	751.68	746.28	744.71	744.86	753.81
26	791.62	792.98	788.90	785.96	A	778.09	766.18	751.58	746.33	744.66	744.94	753.59
27	792.01	791.53	788.89	785.57	A	777.93	764.34	749.59	746.26	744.63	745.01	753.75
28	793.18	791.34	788.82	785.53	A	777.90	763.21	749.59	746.30	744.67	A	753.83
29	793.67	791.22	788.74	784.92	---	777.86	763.12	749.59	746.32	744.67	750.83	753.87
30	793.87	791.26	788.67	784.57	---	777.80	762.10	749.59	745.09	744.74	751.10	753.87
31	794.00	---	788.63	784.51	---	776.41	---	749.59	---	744.66	751.21	---
TOTAL	24624.98	23788.00	24486.04	24394.48	---	---	23190.14	---	22465.13	23087.21	---	22556.42
MEAN	794.35	792.93	789.87	786.92	---	---	773.00	---	748.84	744.75	---	751.88
MAX	796.42	794.50	791.27	788.62	---	---	776.89	---	751.27	745.21	---	753.87
MIN	791.01	791.22	788.63	784.51	---	---	762.10	---	745.09	744.45	---	750.55

A No gage-height record

RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'50", long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida plaza.

DRAINAGE AREA.--169 mi² (436 km²) does not include 6.0 mi² (15.6 km²) above Lago Garzas.

PERIOD OF RECORD.--Water years 1970-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
18...	0905	18	196	7.4	26.0	1.8	4.4	53	<10	310	K1600
DEC 07...	0840	21	215	7.3	25.0	0.70	3.8	45	19	K10	K170
FEB 1994											
07...	1020	17	232	7.2	24.5	0.50	3.5	42	<10	54	20
APR 05...	0850	19	225	7.6	25.0	--	6.2	74	--	K780	K80
JUN 23...	1130	24	235	7.1	28.0	1.1	6.6	84	<10	K20	K120
AUG 08...	0900	21	244	7.5	29.0	1.5	7.0	90	220	K18	K60

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
18...	79	22	5.8	9.4	0.5	2.1	70	<0.5	11	9.2	0.20
DEC 07...	--	--	--	--	--	--	81	--	--	--	--
FEB 1994											
07...	--	--	--	--	--	--	87	--	--	--	--
APR 05...	--	--	--	--	--	--	91	--	--	--	--
JUN 23...	--	--	--	--	--	--	87	--	--	--	--
AUG 08...	93	25	7.3	12	0.5	2.2	90	--	13	14	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOVERABLE (UG/L AS Ba)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM, TOTAL RECOVERABLE (UG/L AS Cd)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS Cr)
OCT 1993											
18...	21	123	5.96	9	--	--	<1	<100	<10	<1	<1
DEC 07...	--	--	--	2	<0.20	0.010	--	--	--	--	--
FEB 1994											
07...	--	--	--	5	<0.20	0.040	--	--	--	--	--
APR 05...	--	--	--	--	0.20	0.040	<1	<100	<10	<1	<1
JUN 23...	--	--	--	6	0.30	0.020	--	--	--	--	--
AUG 08...	21	148	8.38	1	0.50	0.050	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR

LOCATION.--Lat 18°25'22", long 66°41'58", Hydrologic Unit 21010002, 0.5 mi (0.8 km) upstream from Río Tanamá, 3.6 mi (5.8 km) south of Arecibo and 4.9 mi (7.9 km) above mouth, and 10.4 mi (16.7 km) downstream from Lago Dos Bocas.

DRAINAGE AREA.--200 mi² (520 km²), approximately, of which an undetermined amount does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	346	431	129	116	36	76	24	157	78	56	36	127
2	188	613	40	30	62	137	23	273	52	37	34	131
3	215	555	72	27	31	39	21	221	57	35	58	33
4	193	219	93	70	80	76	20	110	64	34	57	50
5	616	57	36	141	31	38	20	38	51	31	35	19
6	352	583	207	69	30	39	103	33	47	35	25	20
7	69	310	115	204	82	366	364	34	45	46	33	73
8	338	201	268	145	28	545	83	45	42	40	120	40
9	396	254	299	154	27	156	25	41	35	35	43	30
10	369	85	206	60	28	28	18	221	31	35	270	30
11	357	48	56	281	26	23	103	66	30	36	64	38
12	84	43	409	113	27	21	53	265	28	35	54	30
13	197	42	266	122	75	22	22	464	28	37	35	30
14	362	72	46	222	37	23	16	279	28	42	33	28
15	58	239	33	146	143	25	17	100	70	39	32	32
16	175	528	31	86	77	38	17	66	71	43	118	269
17	132	645	59	273	66	26	125	82	30	50	48	58
18	258	648	106	50	209	20	26	91	613	46	58	450
19	587	172	62	98	74	21	94	352	102	45	128	179
20	371	50	46	63	37	324	130	201	45	44	219	37
21	92	53	524	74	52	522	170	499	40	230	130	79
22	155	430	310	28	169	52	101	231	e100	61	81	151
23	50	533	71	82	238	21	34	755	e53	245	33	33
24	216	105	52	88	249	17	457	71	e43	141	25	30
25	454	41	92	36	105	17	445	56	e56	52	35	37
26	512	56	31	43	68	18	42	96	e45	167	37	215
27	182	624	35	383	32	37	44	424	e42	55	281	129
28	432	241	120	252	31	30	453	111	e38	31	61	96
29	86	100	198	274	---	22	222	64	e46	36	38	231
30	47	226	77	199	---	23	145	34	70	45	303	293
31	111	---	131	153	---	25	---	34	---	80	43	---
TOTAL	8000	8204	4220	4082	2150	2827	3417	5514	2080	1944	2567	2998
MEAN	258	273	136	132	76.8	91.2	114	178	69.3	62.7	82.8	99.9
MAX	616	648	524	383	249	545	457	755	613	245	303	450
MIN	47	41	31	27	26	17	16	33	28	31	25	19
AC-FT	15870	16270	8370	8100	4260	5610	6780	10940	4130	3860	5090	5950
CFSM	1.29	1.37	.68	.66	.38	.46	.57	.89	.35	.31	.41	.50
IN.	1.49	1.53	.78	.76	.40	.53	.64	1.03	.39	.36	.48	.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1994, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1982	667	1984	1986	221	1992
1983	586	1413	1986	247	1992
1984	305	570	1988	90.3	1992
1985	253	437	1988	132	1994
1986	232	428	1988	76.8	1994
1987	217	351	1985	91.2	1994
1988	383	617	1986	114	1994
1989	632	2000	1986	178	1994
1990	368	683	1987	69.3	1994
1991	260	374	1987	62.7	1994
1992	264	474	1988	82.8	1994
1993	455	1080	1988	99.9	1994
1994					

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1982 - 1994
ANNUAL TOTAL	104780	48003	
ANNUAL MEAN	287	132	385
HIGHEST ANNUAL MEAN			729
LOWEST ANNUAL MEAN			132
HIGHEST DAILY MEAN	856	755	14800
LOWEST DAILY MEAN	31	16	16
ANNUAL SEVEN-DAY MINIMUM	55	22	22
INSTANTANEOUS PEAK FLOW		1270	45800
INSTANTANEOUS PEAK STAGE		3.84	18.22
ANNUAL RUNOFF (AC-FT)	207800	95210	278900
ANNUAL RUNOFF (CFSM)	1.44	.66	1.92
ANNUAL RUNOFF (INCHES)	19.49	8.93	26.15
10 PERCENT EXCEEDS	589	354	784
50 PERCENT EXCEEDS	255	66	254
90 PERCENT EXCEEDS	58	28	56

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA.--18.4 mi² (47.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.32 ft (286.000 m) above mean sea level. Datum of gage was lowered 3.00 ft (0.914 m) on Oct. 1978. Prior to Nov. 17, 1966, non-recording gage and Nov. 17, 1966 to Sept. 30, 1978 recording gage, both at present site.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	29	26	23	16	22	18	11	17	12	6.8	21
2	107	28	25	23	16	15	33	10	59	16	6.3	21
3	e47	29	25	22	16	15	26	9.9	38	19	5.6	15
4	e48	27	25	22	17	15	16	12	16	15	5.4	13
5	43	44	34	21	17	15	17	10	13	11	12	12
6	43	36	31	21	16	17	14	16	12	11	11	11
7	35	28	25	20	16	18	13	13	11	12	42	13
8	33	34	24	20	16	16	13	12	15	16	54	18
9	33	31	23	21	16	15	12	11	12	11	55	13
10	32	30	23	20	15	15	12	15	14	9.7	28	12
11	30	30	23	20	15	14	12	20	13	9.5	17	12
12	29	26	22	19	15	21	13	28	11	9.4	13	13
13	28	27	52	19	15	26	12	20	13	8.6	12	12
14	27	33	114	18	15	15	12	20	13	7.8	11	12
15	26	44	e50	18	16	14	12	16	24	7.5	13	11
16	30	70	e32	18	15	14	11	39	28	7.1	11	10
17	35	55	29	17	15	13	15	31	18	7.6	9.7	9.9
18	28	39	31	17	14	13	16	20	15	7.3	10	13
19	26	33	30	17	14	12	14	16	12	7.3	14	20
20	26	31	37	17	14	12	13	14	11	7.1	12	17
21	25	29	29	16	14	14	12	13	10	6.9	11	86
22	25	28	27	45	14	13	13	12	10	6.8	10	69
23	42	27	27	38	15	13	12	11	10	6.6	9.3	47
24	27	27	26	23	15	13	11	11	10	6.5	13	56
25	26	27	25	19	14	12	12	11	9.9	6.6	14	e31
26	37	26	25	17	14	11	11	11	9.6	6.3	10	e24
27	72	26	24	17	14	11	12	10	9.5	6.4	12	e44
28	70	25	25	16	24	10	15	15	11	6.0	21	28
29	44	37	24	17	---	15	12	19	13	6.9	20	51
30	33	30	24	16	---	15	12	11	10	7.1	13	36
31	30	---	23	16	---	12	---	11	---	6.7	12	---
TOTAL	1167	986	960	633	433	456	426	478.9	468.0	284.7	494.1	750.9
MEAN	37.6	32.9	31.0	20.4	15.5	14.7	14.2	15.4	15.6	9.18	15.9	25.0
MAX	107	70	114	45	24	26	33	39	59	19	55	86
MIN	25	25	22	16	14	10	11	9.9	9.5	6.0	5.4	9.9
AC-FT	2310	1960	1900	1260	859	904	845	950	928	565	980	1490
CFSM	2.05	1.79	1.68	1.11	.84	.80	.77	.84	.85	.50	.87	1.36
IN.	2.36	1.99	1.94	1.28	.88	.92	.86	.97	.95	.58	1.00	1.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

	MEAN	79.8	68.8	42.9	29.1	24.9	24.5	37.0	58.0	42.2	36.6	46.1	73.0
MAX	195	159	121	50.1	40.5	71.2	142	193	116	65.7	110	177	
(WY)	1990	1969	1966	1961	1972	1969	1963	1979	1981	1979	1979	1961	
MIN	25.4	29.3	21.5	18.0	13.2	11.0	9.70	12.4	15.6	9.18	15.9	25.0	
(WY)	1963	1979	1965	1974	1965	1984	1984	1977	1994	1994	1994	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1960 - 1994

ANNUAL TOTAL	13062	7537.6	
ANNUAL MEAN	35.8	20.7	47.0
HIGHEST ANNUAL MEAN			71.1
LOWEST ANNUAL MEAN			20.7
HIGHEST DAILY MEAN	342	Sep 6	114
LOWEST DAILY MEAN	16	Mar 23	5.4
ANNUAL SEVEN-DAY MINIMUM	17	Jul 28	6.4
INSTANTANEOUS PEAK FLOW			1370
INSTANTANEOUS PEAK STAGE			8.76
INSTANTANEOUS LOW FLOW			5.4
ANNUAL RUNOFF (AC-FT)	25910	14950	34020
ANNUAL RUNOFF (CFSM)	1.94	1.12	2.55
ANNUAL RUNOFF (INCHES)	26.41	15.24	34.68
10 PERCENT EXCEEDS	60	35	83
50 PERCENT EXCEEDS	27	16	33
90 PERCENT EXCEEDS	19	10	16

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: January 1968 to current year.

INSTRUMENTATION.--USD-49 SEDIMENT SAMPLER SINCE OCTOBER 1968. AUTOMATIC SEDIMENT SAMPLER SINCE 1990

REMARKS.--Sediment samples were collected by a local observer on a weekly basis and during high flow events.
 Estimates for period of missing daily record were made from a sediment transport curve developed from a period of record over 5 years.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; minimum daily mean, 0 mg/L during water year 1985.

SEDIMENT LOADS: Maximum daily, 167,000 tons (152,000 tonnes) May 18, 1985, minimum daily, 0.0 ton (0.0 tonne) several days during many years.

EXTREMES FOR CURRENT YEAR 1994.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 597 mg/L December 14, 1993; minimum daily mean, 2.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 1,170 tons (1,060 tonnes) December 14, 1993; minimum daily, 0.06 ton (0.05 tonne) several days.

WATER-QUALITY DATA, WATER YEARS OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
20...	1005	26	168	7.9	22.5	1.0	6.6	78	<10	K200	320
DEC											
16...	0905	32	144	7.3	19.5	6.4	6.1	68	<10	K760	K1400
FEB 1994											
10...	0930	15	170	7.4	20.0	1.0	8.6	94	<10	70	110
APR											
20...	1130	13	166	8.1	25.0	0.70	9.4	114	<10	K110	200
JUN											
28...	1045	10	180	7.8	25.0	2.4	9.0	110	<10	590	250
AUG											
24...	0930	9.5	184	7.5	24.0	3.9	9.0	108	<10	K100	380

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
20...	61	15	5.8	7.3	0.4	2.3	66	<0.5	11	8.1	<0.10
DEC											
16...	--	--	--	--	--	--	49	--	--	--	--
FEB 1994											
10...	--	--	--	--	--	--	62	--	--	--	--
APR											
20...	64	16	5.9	8.3	0.5	3.0	59	<0.5	14	9.2	<0.10
JUN											
28...	--	--	--	--	--	--	62	--	--	--	--
AUG											
24...	63	16	5.6	8.1	0.4	2.1	66	--	14	8.4	<0.10

K = non-ideal count

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
20...	26	115	7.92	7	<0.20	0.030	<1	<100	<10	<1	1
DEC											
16...	--	--	--	7	<0.20	<0.010	--	--	--	--	--
FEB 1994											
10...	--	--	--	5	<0.20	0.020	--	--	--	--	--
APR											
20...	24	116	4.03	4	--	--	<1	100	10	<1	<1
JUN											
28...	--	--	--	<1	<0.20	0.040	--	--	--	--	--
AUG											
24...	25	119	3.05	9	<0.20	<0.010	--	--	--	--	--

[illegible]

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	30	14	1.1	29	14	1.0	26	32	2.2
2	107	553	1080	28	10	.78	25	14	.91
3	e47	61	e9.0	29	8	.72	25	13	.81
4	e48	91	e19	27	7	.54	25	12	.81
5	e43	120	e17	44	60	18	34	37	8.3
6	43	55	7.1	36	40	4.5	31	41	4.2
7	35	26	2.5	28	25	1.9	25	30	2.0
8	33	13	1.2	34	30	3.1	24	23	1.4
9	33	14	1.2	31	21	1.8	23	18	1.1
10	32	15	1.3	30	16	1.4	23	15	.90
11	30	15	1.2	30	22	2.0	23	12	.70
12	29	15	1.1	26	12	.86	22	10	.60
13	28	14	.98	27	12	.86	52	122	55
14	27	13	.93	33	23	2.2	114	597	1170
15	26	13	.92	44	42	5.7	e50	69	e11
16	30	18	1.6	70	195	122	e32	28	e2.5
17	35	26	2.7	55	81	15	29	16	1.3
18	28	13	1.1	39	47	5.1	31	12	.90
19	26	10	.67	33	28	2.6	30	14	2.0
20	26	9	.62	31	15	1.2	37	52	7.7
21	25	10	.62	29	14	1.0	29	23	1.8
22	25	10	.64	28	13	.93	27	19	1.4
23	42	88	40	27	12	.88	27	16	1.2
24	27	23	1.8	27	12	.88	26	11	.77
25	26	15	1.1	27	11	.76	25	8	.57
26	37	43	7.8	26	8	.60	25	12	.78
27	72	150	82	26	7	.48	24	18	1.2
28	70	218	100	25	5	.36	25	21	1.3
29	44	46	6.0	37	45	10	24	17	1.0
30	33	22	2.0	30	50	4.5	24	11	.68
31	30	17	1.4	---	---	---	23	6	.44
TOTAL	1167	---	1394.58	986	---	211.65	960	---	1285.47

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	23	6	.41	16	8	.36	22	34	2.5
2	23	10	.61	16	7	.31	15	24	1.0
3	22	12	.72	16	7	.30	15	16	.65
4	22	11	.62	17	5	.24	15	9	.36
5	21	7	.43	17	5	.22	15	5	.21
6	21	5	.28	16	5	.22	17	4	.20
7	20	4	.22	16	5	.22	18	3	.17
8	20	4	.22	16	5	.23	16	3	.12
9	21	5	.29	16	6	.25	15	3	.12
10	20	7	.41	15	6	.25	15	3	.12
11	20	11	.57	15	6	.24	14	3	.12
12	19	12	.65	15	6	.23	21	18	4.3
13	19	11	.54	15	6	.22	26	27	2.9
14	18	8	.39	15	5	.22	15	11	.45
15	18	7	.33	16	5	.21	14	11	.40
16	18	7	.33	15	4	.18	14	9	.34
17	17	7	.32	15	4	.16	13	7	.27
18	17	6	.30	14	4	.16	13	6	.23
19	17	6	.27	14	4	.16	12	5	.17
20	17	5	.24	14	4	.16	12	4	.14
21	16	4	.20	14	4	.16	14	3	.13
22	45	171	134	14	4	.16	13	3	.10
23	38	74	9.8	15	4	.16	13	3	.10
24	23	33	2.5	15	4	.16	13	3	.10
25	19	15	.82	14	4	.16	12	2	.08
26	17	12	.57	14	4	.16	11	2	.06
27	17	11	.49	14	4	.16	11	2	.06
28	16	12	.50	24	27	6.5	10	2	.06
29	17	13	.54	---	---	---	15	9	.61
30	16	13	.56	---	---	---	15	20	.94
31	16	12	.48	---	---	---	12	11	.36
TOTAL	633	---	158.61	433	---	12.16	456	---	17.37

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	18	15	1.6	11	18	.54	17	41	2.2
2	33	49	12	10	18	.51	59	221	114
3	26	22	2.1	9.9	18	.47	38	62	10
4	16	11	.56	12	17	.48	16	33	1.5
5	17	15	.68	10	16	.45	13	27	.99
6	14	14	.51	16	20	1.2	12	21	.71
7	13	12	.44	13	19	.78	11	15	.47
8	13	12	.42	12	16	.52	15	14	.68
9	12	11	.37	11	15	.44	12	18	.64
10	12	10	.32	15	22	1.1	14	20	.80
11	12	8	.27	20	41	2.2	13	19	.75
12	13	6	.21	28	46	6.3	11	18	.54
13	12	6	.20	20	30	1.7	13	19	.66
14	12	6	.20	20	31	1.8	13	14	.55
15	12	6	.20	16	22	1.1	24	29	3.6
16	11	6	.19	39	85	26	28	49	4.4
17	15	11	.49	31	49	5.0	18	40	1.9
18	16	5	.21	20	40	2.3	15	38	1.5
19	14	5	.20	16	38	1.6	12	37	1.3
20	13	5	.17	14	35	1.3	11	39	1.1
21	12	5	.18	13	30	1.0	10	42	1.1
22	13	4	.15	12	24	.75	10	41	1.1
23	12	4	.12	11	20	.58	10	34	.92
24	11	3	.11	11	19	.55	10	25	.68
25	12	2	.08	11	18	.54	9.9	19	.51
26	11	3	.10	11	18	.51	9.6	18	.46
27	12	7	.29	10	18	.47	9.5	17	.44
28	15	13	.50	15	23	1.5	11	13	.35
29	12	16	.56	19	38	2.2	13	10	.31
30	12	18	.55	11	37	1.1	10	10	.26
31	---	---	---	11	39	1.1	---	---	---
TOTAL	426	---	23.98	478.9	---	66.09	468.0	---	154.42

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	12	10	.32	6.8	18	.33	21	14	1.1
2	16	12	.59	6.3	18	.30	21	14	1.2
3	19	15	.88	5.6	17	.25	15	26	1.0
4	15	18	.74	5.4	18	.26	13	42	1.5
5	11	18	.51	12	33	1.1	12	42	1.4
6	11	18	.53	11	39	1.3	11	42	1.4
7	12	18	.61	42	123	49	13	42	1.5
8	16	18	.86	54	130	54	18	42	2.2
9	11	18	.53	55	67	14	13	40	1.5
10	9.7	18	.47	28	38	2.8	12	33	1.1
11	9.5	17	.43	17	37	1.7	12	23	.74
12	9.4	17	.43	13	39	1.4	13	17	.59
13	8.6	17	.39	12	41	1.3	12	16	.56
14	7.8	17	.35	11	40	1.2	12	17	.60
15	7.5	17	.34	13	33	1.0	11	18	.56
16	7.1	17	.34	11	25	.73	10	18	.48
17	7.6	17	.34	9.7	16	.41	9.9	17	.46
18	7.3	17	.34	10	11	.32	13	13	.47
19	7.3	17	.34	14	11	.54	20	22	2.5
20	7.1	17	.33	12	10	.38	17	18	.83
21	6.9	17	.32	11	10	.29	86	437	428
22	6.8	17	.31	10	10	.26	69	165	70
23	6.6	17	.30	9.3	26	.64	47	63	14
24	6.5	17	.30	13	32	1.1	56	80	18
25	6.6	17	.30	14	34	1.3	331	24	2.3
26	6.3	16	.28	10	34	.98	24	14	.97
27	6.4	15	.27	12	31	1.0	44	100	47
28	6.0	15	.24	21	39	3.4	28	18	1.5
29	6.9	15	.27	20	14	.95	51	124	59
30	7.1	17	.35	13	10	.35	36	59	6.6
31	6.7	18	.34	12	10	.36	---	---	---
TOTAL	284.7	---	12.95	494.1	---	142.95	750.9	---	669.06
YEAR	7537.6		4149.29						

* Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
AUG 1994							
07...	1515	164	5780	2560	34	45	64
20...	0837	19	860	44	88	94	93
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM
AUG 1994							
07...	81	85	94	96	98	99	99.6
20...	91	93	99.6	99.7	99.7	99.8	100

RIO GRANDE DE ARECIBO BASIN
 50028000 RIO TANAMA NEAR UTUADO--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
23...	1703	42	51	446	98
27...	1640	322	710	817	98
JUN 1994					
16...	0959	22	9.0	151	98
AUG					
07...	1410	228	1400	862	86
SEP					
24...	0823	65	425	75	98

RIO GRANDE DE ARECIBO BASIN

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank at abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA.--57.6 mi² (149.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1969 to June 1971, October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	66	59	e48	e36	56	24	28	24	26	29	26
2	176	65	59	e48	e36	33	41	27	60	29	26	34
3	129	65	58	e47	e35	30	64	27	122	53	22	35
4	114	66	58	e47	e36	29	34	28	46	41	21	24
5	114	72	58	e47	e36	29	36	27	32	30	23	24
6	90	129	72	e46	e34	31	31	28	27	28	31	24
7	76	90	68	e46	e34	36	29	40	e22	31	50	24
8	70	77	72	e47	e34	30	27	31	e21	39	82	30
9	68	95	68	e45	e33	29	27	29	38	31	125	27
10	85	73	60	e45	e33	30	28	32	30	29	71	25
11	124	72	62	e44	e32	32	27	41	36	27	45	24
12	83	66	69	54	32	29	28	49	30	29	35	24
13	71	65	80	58	31	47	27	62	25	27	31	33
14	68	73	163	59	32	28	27	62	28	26	28	25
15	67	147	124	56	35	26	28	57	34	26	25	24
16	67	199	83	e45	33	24	28	75	59	28	25	24
17	76	177	e70	e43	31	25	31	105	45	30	24	23
18	84	102	e65	56	31	e32	34	96	e35	25	23	24
19	78	75	e62	63	31	e28	31	48	e30	24	28	25
20	72	68	e60	e52	30	e26	30	36	e27	23	42	38
21	70	65	54	e45	33	e28	28	31	25	22	28	107
22	70	63	53	e60	31	23	29	26	26	22	25	125
23	89	61	52	107	30	24	29	25	25	21	24	109
24	89	60	52	69	32	23	29	24	25	21	25	78
25	81	59	52	e42	31	23	31	25	25	21	31	58
26	73	59	52	e39	30	22	29	23	25	21	26	44
27	143	59	51	e39	31	25	32	23	25	20	25	58
28	125	59	51	e38	30	25	43	22	24	21	24	62
29	106	59	50	e38	---	22	42	38	28	22	45	54
30	74	74	e50	e39	---	31	30	27	27	24	27	116
31	68	---	e48	e36	---	28	---	24	---	23	23	---
TOTAL	2771	2460	2035	1548	913	904	954	1216	1026	840	1089	1348
MEAN	89.4	82.0	65.6	49.9	32.6	29.2	31.8	39.2	34.2	27.1	35.1	44.9
MAX	176	199	163	107	36	56	64	105	122	53	125	125
MIN	67	59	48	36	30	22	24	22	21	20	21	23
AC-FT	5500	4880	4040	3070	1810	1790	1890	2410	2040	1670	2160	2670
CFSM	1.55	1.42	1.14	.87	.57	.51	.55	.68	.59	.47	.61	.78
IN.	1.79	1.59	1.31	1.00	.59	.58	.62	.79	.66	.54	.70	.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MEAN	165	141	82.0	55.3	45.8	39.9	70.2	133	88.0	65.2	72.1	111														
MAX	335	260	219	90.8	85.1	70.0	141	371	179	120	125	216														
(WY)	1990	1982	1982	1982	1971	1971	1986	1986	1970	1969	1991	1984														
MIN	72.1	71.5	36.4	22.3	16.7	16.6	25.9	15.8	23.3	22.0	35.1	44.9														
(WY)	1983	1988	1989	1989	1989	1988	1989	1989	1989	1989	1994	1994														

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1969 - 1994

ANNUAL TOTAL	29353	17104	
ANNUAL MEAN	80.4	46.9	88.8
HIGHEST ANNUAL MEAN			124
LOWEST ANNUAL MEAN			51.3
HIGHEST DAILY MEAN	540	Sep 6	2500
LOWEST DAILY MEAN	34	Jul 30	4.2
ANNUAL SEVEN-DAY MINIMUM	35	Jul 29	5.4
INSTANTANEOUS PEAK FLOW			15000
INSTANTANEOUS PEAK STAGE			17.95
ANNUAL RUNOFF (AC-FT)	58220	33930	64340
ANNUAL RUNOFF (CFSM)	1.40	.81	1.54
ANNUAL RUNOFF (INCHES)	18.96	11.05	20.95
10 PERCENT EXCEEDS	136	79	174
50 PERCENT EXCEEDS	68	34	64
90 PERCENT EXCEEDS	40	24	27

e Estimated

RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Rio Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi² (520 km²), approximately.

PERIOD OF RECORD.--Water years 1963-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
26...	0855	167	260	7.5	26.0	3.6	6.2	75	13	550	460
DEC											
17...	0820	145	268	7.6	24.5	9.0	4.0	47	<10	K1600	K1700
FEB 1994											
14...	0825	70	275	7.7	24.0	1.4	5.4	63	<10	270	140
APR											
06...	0900	72	265	7.9	25.0	--	8.0	97	--	240	K130
JUL											
08...	1115	90	254	8.7	28.0	1.0	9.0	114	<10	K150	K82
AUG											
17...	1025	93	267	7.7	29.0	1.5	8.4	109	10	230	K170

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
26...	120	38	5.8	9.6	0.4	2.4	110	<0.5	10	9.7	0.10
DEC											
17...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
14...	--	--	--	--	--	--	120	--	--	--	--
APR											
06...	--	--	--	--	--	--	110	<0.5	--	--	--
JUL											
08...	--	--	--	--	--	--	110	--	--	--	--
AUG											
17...	120	36	6.7	11	0.4	1.8	110	--	12	11	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
26...	19	161	72.4	4	0.60	0.030	<1	<100	10	<1	<1
DEC											
17...	--	--	--	17	<0.20	<0.010	--	--	--	--	--
FEB 1994											
14...	--	--	--	2	<0.20	0.030	--	--	--	--	--
APR											
06...	--	--	--	--	<0.20	0.020	<1	<100	20	<1	<1
JUL											
08...	--	--	--	6	<0.20	0.040	--	--	--	--	--
AUG											
17...	16	161	40.5	4	<0.20	0.010	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

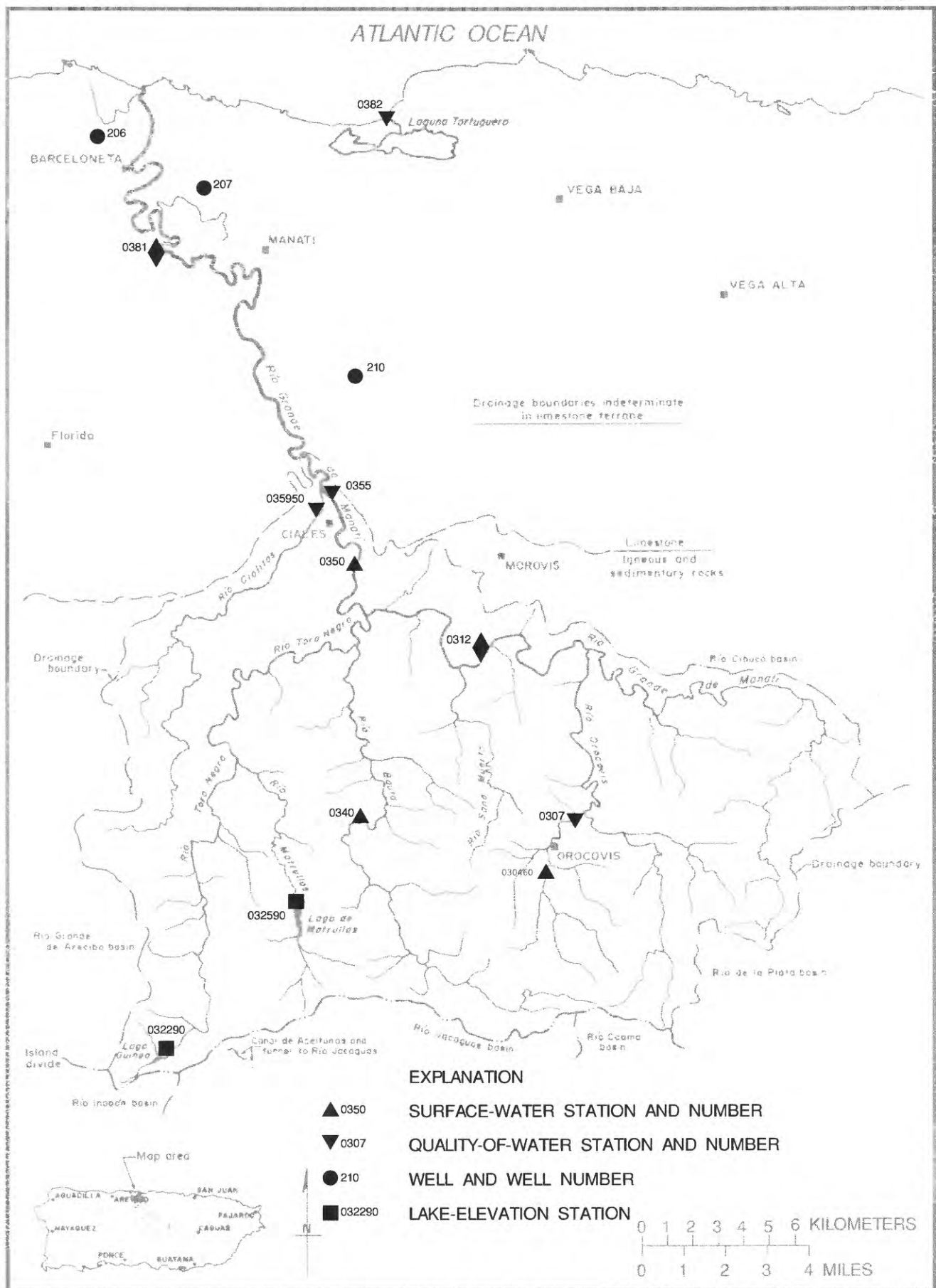


Figure 16.--Río Grande de Manatí basin.

RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 2.1 mi (3.38 km) upstream from Río Botijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi² (13.03 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.87	2.1	1.6	e1.5	1.5	1.3	.83	1.1	.92	1.0	1.2	.88
2	.78	1.8	1.4	e1.4	1.5	1.5	.83	1.2	.94	.94	1.2	1.1
3	.80	1.8	1.2	e1.3	1.5	1.2	.89	1.2	.88	.88	1.2	1.1
4	.83	1.9	1.2	e1.4	1.5	1.1	.89	1.2	.88	.90	1.2	.98
5	.87	1.9	1.1	1.9	1.4	1.1	.89	1.5	.91	.89	1.2	.90
6	.93	2.0	1.1	1.8	1.4	1.0	1.0	1.3	.87	.92	1.2	.98
7	1.0	2.5	.97	1.5	1.4	1.1	1.0	1.1	.87	.95	4.4	1.1
8	.95	1.7	.94	1.2	2.0	.96	1.0	1.1	.88	.89	2.2	.97
9	.97	2.2	.98	1.3	1.9	.86	1.1	1.2	.84	.85	1.3	.91
10	1.2	2.2	1.2	1.4	1.9	1.2	1.1	1.1	.83	.87	1.2	.88
11	.75	1.5	1.3	2.1	1.7	.81	1.7	1.1	.84	.83	1.2	.93
12	.75	1.7	1.1	2.2	1.4	.75	2.3	1.1	.83	.79	1.1	.86
13	.78	2.0	1.2	1.5	1.6	.79	1.0	1.1	.86	.78	1.0	.79
14	.87	2.9	2.0	1.7	1.5	.80	1.2	1.8	.84	.77	1.0	.75
15	.87	18	3.0	2.9	1.3	.71	2.8	10	.80	.73	1.1	.69
16	1.2	31	1.1	3.4	1.3	.69	2.9	1.5	.82	.73	.99	.74
17	7.3	6.2	1.1	2.4	1.4	.97	1.4	1.2	.91	.74	.96	.78
18	4.1	3.0	1.4	2.0	1.4	1.0	1.2	1.3	.89	.81	1.2	.79
19	.84	4.2	1.3	1.7	1.4	.83	.96	1.3	.87	.88	1.2	.80
20	.75	1.9	e1.2	1.8	1.6	.83	.94	1.2	.89	.88	1.1	1.2
21	.72	1.7	e1.1	1.7	1.5	.74	.94	1.2	.86	.88	1.1	.98
22	.77	1.9	e1.1	1.8	1.4	.74	.94	1.1	.88	.88	1.0	.89
23	.78	1.6	e1.1	1.8	1.4	.83	.94	1.2	.87	.86	.99	.83
24	.78	1.5	e1.1	1.7	1.3	.78	.94	1.1	.86	.87	.98	.83
25	.73	1.3	e1.1	1.6	1.3	.78	.94	1.0	.84	.88	1.0	.81
26	.70	1.4	e1.1	1.5	1.2	.74	5.8	1.0	1.0	.90	.94	.82
27	3.6	1.7	e1.3	1.5	2.0	.74	8.1	1.1	.92	.92	.92	.81
28	11	1.5	e1.5	1.7	1.8	.69	1.6	.96	.88	.93	.93	.79
29	9.7	1.5	e1.5	1.7	---	.69	1.3	.95	.89	.95	.89	.78
30	2.0	1.8	e1.4	1.6	---	.83	1.2	.95	.99	.96	.87	.76
31	2.2	---	e1.4	1.6	---	.83	---	.89	---	1.1	.87	---
TOTAL	60.39	108.4	40.09	54.6	42.5	27.89	48.63	45.05	26.36	27.16	37.64	26.43
MEAN	1.95	3.61	1.29	1.76	1.52	.90	1.62	1.45	.88	.88	1.21	.88
MAX	11	31	3.0	3.4	2.0	1.5	8.1	10	1.0	1.1	4.4	1.2
MIN	.70	1.3	.94	1.2	1.2	.69	.83	.89	.80	.73	.87	.69
AC-FT	120	215	80	108	84	55	96	89	52	54	75	52
CFSM	.39	.72	.26	.35	.30	.18	.32	.29	.17	.17	.24	.18
IN.	.45	.80	.30	.40	.31	.21	.36	.33	.19	.20	.28	.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1994, BY WATER YEAR (WY)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MEAN	19.9	7.11	5.83	7.02	2.26	1.72	6.43	12.9	4.87	3.40	4.07	10.8		
MAX	58.0	15.2	15.8	34.3	2.97	2.46	21.0	31.8	15.2	8.40	12.3	39.6		
(WY)	1990	1991	1982	1992	1992	1990	1993	1981	1992	1991	1989	1989		
MIN	1.95	2.19	1.29	1.47	1.52	.90	1.32	1.42	.88	.88	1.03	.88		
(WY)	1994	1992	1994	1989	1994	1994	1982	1989	1994	1994	1982	1994		

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1981 - 1994

ANNUAL TOTAL	2134.98	545.14	
ANNUAL MEAN	5.85	1.49	6.92
HIGHEST ANNUAL MEAN			9.35
LOWEST ANNUAL MEAN			1.49
HIGHEST DAILY MEAN	229	Apr 29	420
LOWEST DAILY MEAN	.60	Jan 26	.20
ANNUAL SEVEN-DAY MINIMUM	.70	Feb 7	.33
INSTANTANEOUS PEAK FLOW			79
INSTANTANEOUS PEAK STAGE			6.04
ANNUAL RUNOFF (AC-FT)	4230	1080	5010
ANNUAL RUNOFF (CFSM)	1.16	.30	1.38
ANNUAL RUNOFF (INCHES)	15.79	4.03	18.69
10 PERCENT EXCEEDS	9.7	2.0	12
50 PERCENT EXCEEDS	1.8	1.1	1.9
90 PERCENT EXCEEDS	.89	.79	.95

e Estimated

RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis plaza.

DRAINAGE AREA.--10.1 mi² (26.2 km²).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
14...	0935	7.3	322	8.2	23.0	1.3	7.2	86	<10	K770	660
DEC 02...	1040	7.2	337	7.9	21.5	18	4.3	50	11	200	560
FEB 1994											
03...	0810	4.0	350	8.0	19.5	1.5	2.9	32	<10	570	160
APR 14...	1310	3.8	328	8.1	23.0	--	9.4	115	--	530	870
JUN 20...	1530	2.6	352	8.2	28.0	1.1	6.4	86	<10	250	K120
AUG 09...	1200	2.2	357	8.1	24.0	2.6	7.8	97	17	480	570

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
14...	140	35	13	13	0.5	1.6	150	<0.5	9.8	15	0.20
DEC 02...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
03...	--	--	--	--	--	--	150	--	--	--	--
APR 14...	--	--	--	--	--	--	140	<0.5	--	--	--
JUN 20...	--	--	--	--	--	--	160	--	--	--	--
AUG 09...	140	38	12	15	0.5	1.5	140	--	14	19	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
14...	35	213	4.17	8	0.30	0.180	<1	100	30	<1	<1
DEC 02...	--	--	--	28	<0.20	0.200	--	--	--	--	--
FEB 1994											
03...	--	--	--	6	<0.20	0.200	--	--	--	--	--
APR 14...	--	--	--	--	--	--	<1	<100	30	<1	<1
JUN 20...	--	--	--	3	<0.20	0.290	--	--	--	--	--
AUG 09...	31	214	1.30	6	--	--	--	--	--	--	--

K = non-ideal count

50030700 RIO OROCOVIS NEAR OROCOVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank, 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Río Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA.--55.2 mi² (143.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

REMARKS.--Records poor. Public water-supply pumpage, about 300 ft (91 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	41	32	29	18	25	9.7	13	8.6	8.4	6.2	8.8
2	54	40	36	33	17	25	11	13	8.2	7.0	5.9	7.9
3	50	39	36	30	15	20	8.7	12	7.7	6.0	5.1	6.6
4	52	38	35	28	15	16	8.8	12	7.7	6.2	4.3	6.9
5	48	62	38	29	18	16	e12	13	e7.6	6.2	4.1	5.3
6	44	67	35	28	15	16	18	14	e7.6	8.4	4.3	5.2
7	48	40	32	28	14	15	12	14	7.6	9.3	9.9	8.4
8	45	43	30	27	13	13	12	14	7.0	7.1	4.1	8.7
9	40	54	29	26	12	12	11	13	e6.8	6.1	20	6.1
10	39	51	31	27	12	12	9.9	14	6.4	6.3	13	6.4
11	40	42	30	33	12	12	14	23	6.6	5.3	10	6.5
12	39	41	26	40	11	12	53	19	6.9	5.1	8.5	8.5
13	40	46	28	34	11	13	26	15	6.7	5.1	7.7	6.8
14	35	137	32	30	11	12	e17	15	6.1	4.9	7.1	5.2
15	34	255	45	29	13	12	27	18	6.2	4.7	7.2	4.8
16	38	284	31	29	12	12	27	26	7.3	4.8	6.8	5.3
17	100	188	29	30	11	12	19	e61	7.2	5.1	5.5	5.6
18	101	151	35	38	9.9	11	18	26	e9.4	5.2	8.0	5.5
19	47	180	37	31	e9.7	10	14	20	e7.2	7.1	17	4.4
20	41	115	32	38	e9.7	10	11	15	7.4	6.2	14	7.6
21	38	87	30	39	e10	9.8	10	13	5.8	5.0	13	17
22	38	74	30	33	9.7	10	9.9	12	5.1	4.3	12	9.1
23	38	66	28	34	10	9.9	9.6	11	5.2	3.9	10	6.2
24	35	57	24	33	10	9.8	8.7	11	5.3	3.9	8.8	7.3
25	35	53	25	32	11	9.9	8.5	11	5.4	4.0	8.6	6.3
26	33	50	24	31	9.9	9.5	15	10	5.7	3.8	8.3	9.0
27	45	50	28	28	e22	10	108	11	7.2	3.8	7.4	6.8
28	137	48	33	26	86	9.8	35	10	5.9	4.1	7.7	5.0
29	127	49	32	27	---	11	20	10	5.4	4.9	7.8	4.7
30	56	44	30	25	---	10	16	9.4	5.2	4.6	6.7	4.2
31	45	---	28	21	---	10	---	8.7	---	5.0	5.8	---
TOTAL	1641	2492	971	946	427.9	395.7	579.8	487.1	202.4	171.8	301.7	206.1
MEAN	52.9	83.1	31.3	30.5	15.3	12.8	19.3	15.7	6.75	5.54	9.73	6.87
MAX	137	284	45	40	86	25	108	61	9.4	9.3	41	17
MIN	33	38	24	21	9.7	9.5	8.5	8.7	5.1	3.8	4.1	4.2
AC-FT	3250	4940	1930	1880	849	785	1150	966	401	341	598	409
CFSM	.96	1.50	.57	.55	.28	.23	.35	.28	.12	.10	.18	.12
IN.	1.11	1.68	.65	.64	.29	.27	.39	.33	.14	.12	.20	.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1994, BY WATER YEAR (WY)

	MEAN	161	152	114	81.6	64.3	67.2	113	165	63.6	47.7	57.2	90.5
MAX	1037	491	522	191	179	226	412	915	173	157	435	386	
(WY)	1971	1971	1966	1992	1969	1972	1969	1985	1987	1979	1979	1979	
MIN	24.0	28.3	27.9	24.7	15.3	12.7	10.6	15.7	6.75	5.54	9.70	6.87	
(WY)	1978	1974	1984	1984	1994	1984	1984	1994	1994	1994	1984	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1965 - 1994

ANNUAL TOTAL	30660	8822.5	
ANNUAL MEAN	84.0	24.2	98.9
HIGHEST ANNUAL MEAN			248
LOWEST ANNUAL MEAN			24.2
HIGHEST DAILY MEAN	949	284	17100
LOWEST DAILY MEAN	18	3.8	3.8
ANNUAL SEVEN-DAY MINIMUM	19	4.0	4.0
INSTANTANEOUS PEAK FLOW		606	48000
INSTANTANEOUS PEAK STAGE		2.19	17.89
INSTANTANEOUS LOW FLOW			4.4
ANNUAL RUNOFF (AC-FT)	60810	17500	71670
ANNUAL RUNOFF (CFSM)	1.52	.44	1.79
ANNUAL RUNOFF (INCHES)	20.66	5.95	24.35
10 PERCENT EXCEEDS	174	46	174
50 PERCENT EXCEEDS	52	13	50
90 PERCENT EXCEEDS	31	5.4	23

e Estimated

RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
14...	1235	37	282	8.4	28.0	2.9	4.6	58	<10	K73	260
DEC 02...	0910	35	289	7.9	22.5	5.1	4.9	56	<10	K190	230
FEB 1994											
03...	1020	15	297	8.0	22.0	1.2	4.0	46	<10	100	91
APR 28...	1045	33	230	7.5	24.0	80	7.2	86	16	K96	5800
JUN 22...	1305	5.3	299	8.0	31.0	2.6	8.8	117	<10	K140	K140
AUG 09...	1005	13	297	7.9	25.5	5.2	8.0	98	15	560	420

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
14...	120	27	12	12	0.5	2.2	120	<0.5	8.0	14	0.20
DEC 02...	--	--	--	--	--	--	120	--	--	--	--
FEB 1994											
03...	--	--	--	--	--	--	120	--	--	--	--
APR 28...	99	25	8.8	12	0.5	3.2	82	<0.5	12	15	0.10
JUN 22...	--	--	--	--	--	--	130	--	--	--	--
AUG 09...	120	28	11	14	0.6	2.5	120	--	10	18	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
14...	28	175	17.6	12	0.40	0.070	<1	<100	30	<1	<1
DEC 02...	--	--	--	13	<0.20	0.050	--	--	--	--	--
FEB 1994											
03...	--	--	--	5	<0.20	0.060	--	--	--	--	--
APR 28...	21	146	13.0	116	--	--	<1	100	30	<1	8
JUN 22...	--	--	--	15	0.30	0.060	--	--	--	--	--
AUG 09...	28	183	6.54	18	--	--	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE MANATI BASIN

50032290 LAGO EL GUINEO AT DAMSITE, PR

LOCATION.--Lat 18°09'41", long 66°31'36", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba plaza and 1.9 mi (3.1 km) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi² (4.25 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm³) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and conveyed to the head water works of Toro Negro Hydroelectric Plant No.2, for energy generation at Toro Negro Hydroelectric plant No.1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,966 ft (904 m) above mean sea level and a design capacity of 7,000 ft³/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,961.70 ft (902.73 m), Oct. 21, 1990; minimum elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,954.48 ft (900.52 m), Dec. 15; minimum elevation, 2,926.00 ft (891.84 m), May 27.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,872	0	2,943	1,029
2,919	361	2,950	1,308
2,925	491	2,961	1,852

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	A	2952.75	2952.90	2952.85	2950.51	2948.54	2944.51	2937.75	2926.70	2931.92	2929.50	2931.90
2	A	2952.90	2952.95	2952.89	2950.37	2948.58	2944.52	2936.83	2932.20	2931.93	2929.50	2931.90
3	A	2952.99	2953.01	2952.58	2950.23	2948.60	2944.52	2935.90	2932.50	2931.94	2929.50	2931.90
4	A	2953.09	2953.07	2952.30	2950.25	2948.18	2944.20	2935.20	2932.60	2931.95	2929.40	2931.90
5	2947.87	2952.84	2953.12	2952.10	2950.27	2948.21	2944.07	2934.38	2932.70	2931.69	2929.40	2931.90
6	2948.17	2952.94	2952.76	2952.13	2950.28	2948.23	2943.92	2934.35	2932.70	2931.39	2929.40	2931.90
7	2948.51	2953.03	2952.82	2951.82	2950.30	2948.24	2943.80	2934.51	2932.80	2931.07	2929.50	2931.60
8	2948.73	2952.79	2952.88	2951.84	2950.12	2947.92	2943.70	2934.56	2932.90	2930.84	2930.00	2931.60
9	2948.93	2952.61	2952.92	2951.89	2949.83	2947.63	2943.71	2933.91	2932.90	2930.85	2930.00	2931.60
10	2948.13	2952.45	2952.97	2951.91	2949.84	2947.36	2943.71	2933.14	2933.00	2930.85	2930.00	2931.60
11	2949.30	2952.54	2953.02	2951.98	2949.60	2947.08	2943.62	2932.75	2933.00	2930.59	2929.90	2931.70
12	2949.48	2952.40	2953.07	2952.02	2949.61	2947.28	2943.40	2931.60	2933.10	2930.10	2929.90	2931.70
13	2949.66	2952.52	2954.31	2952.06	2949.62	2947.32	2943.29	2930.38	2933.10	2929.80	2929.90	2931.70
14	2949.80	2952.59	2954.45	2951.39	2949.49	2947.15	2943.13	2931.51	2933.10	2929.80	2930.00	2931.70
15	2949.95	2952.45	2954.39	2950.52	2948.97	2946.84	2943.16	2931.74	2933.20	2929.80	2930.00	2931.70
16	2950.42	2952.60	2954.45	2950.37	2948.74	2946.62	2943.16	2931.46	2933.20	2929.80	2930.00	2931.70
17	2950.71	2952.69	2954.16	2950.41	2948.46	2946.32	2943.18	2931.38	2933.30	2929.80	2930.00	2931.80
18	2950.90	2952.85	2954.22	2950.43	2948.29	2945.99	2943.20	2931.46	2933.30	2929.90	2930.00	2931.88
19	2951.06	2952.93	2954.28	2950.20	2948.39	2946.00	2943.01	2931.32	2933.40	2929.90	2930.00	2931.97
20	2951.20	2953.13	2953.90	2950.09	2948.43	2946.01	2943.03	2930.86	2933.40	2929.90	2930.00	2932.71
21	2951.33	2953.23	2953.64	2950.14	2948.45	2945.80	2942.53	2930.22	2933.40	2929.90	2930.00	2933.21
22	2951.45	2953.17	2953.82	2950.18	2948.25	2945.81	2941.97	2930.27	2933.40	2929.50	2930.00	2933.31
23	2951.64	2953.07	2953.88	2950.28	2948.07	2945.47	2941.07	2929.47	2933.20	2929.50	2930.00	2933.36
24	2951.92	2952.91	2953.94	2950.33	2948.08	2945.35	2941.26	2927.99	2933.10	2929.50	2929.80	2934.52
25	2952.07	2952.98	2953.98	2950.36	2948.10	2944.84	2940.55	2928.03	2933.15	2929.50	2929.90	2934.75
26	2952.20	2953.05	2954.03	2950.38	2948.11	2944.84	2939.85	2928.07	2933.17	2929.50	2930.00	2934.85
27	2952.41	2952.61	2953.66	2950.41	2948.13	2944.85	2939.32	2926.58	2932.90	2929.50	2930.00	2934.92
28	2952.48	2952.70	2953.54	2950.43	2948.43	2944.67	2938.54	2926.63	2932.52	2929.50	2930.80	2934.97
29	2952.41	2952.77	2953.24	2950.45	---	2944.49	2937.72	2926.70	2932.42	2929.50	2931.90	2935.04
30	2952.53	2952.85	2952.75	2950.47	---	2944.50	2937.73	2926.73	2932.19	2929.50	2931.90	2936.30
31	2952.64	---	2952.80	2950.48	---	2944.49	---	2926.76	---	2929.40	2931.90	---
MEAN	---	2952.81	2953.51	2951.15	2949.19	2946.55	2942.45	2931.37	2932.75	2930.28	2930.07	2932.72
MAX	---	2953.23	2954.45	2952.89	2950.51	2948.60	2944.52	2937.75	2933.40	2931.95	2931.90	2936.30
MIN	---	2952.40	2952.75	2950.09	2948.07	2944.49	2937.72	2926.58	2926.70	2929.40	2929.40	2931.60

A No gage-height record

RIO GRANDE DE MANATI BASIN

93

50032590 LAGO DE MATRULLAS AT DAMSITE, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in concrete house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA.--4.46 mi² (11.55 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 ac-ft (5.220 hm³) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority and is part of the Toro Negro Hydroelectric Project; a project developed by the P.R.E.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacaguas River which flows into Guayabal Dam, at which dam they are regulated for irrigation of lands served by the Juana Diaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,413.56 ft (735.65 m), Jan. 6, 1992; minimum elevation, 2,375.55 ft (724.06 m), Sept. 24, 25, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,412.01 ft (735.18 m), Jan. 11; minimum elevation, 2,375.55 ft (724.06 m), Sept. 24, 25.

Capacity Table (based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
2,338	2	2,399	1,845
2,360	302	2,415	2,945

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994 DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2403.87	2404.21	2408.78	2411.85	2411.23	2406.41	2400.29	2394.48	2387.72	2386.99	2383.03	2378.81
2	2403.91	2404.16	2408.88	2411.91	2411.12	2406.20	2400.33	2394.25	2387.67	2386.83	2382.75	2378.49
3	2404.05	2404.14	2409.02	2411.86	2411.02	2405.90	2400.38	2393.82	2387.72	2386.82	2382.42	2378.33
4	2403.94	2404.21	2409.15	2411.92	2410.94	2405.60	2400.18	2393.39	2387.80	2386.83	2382.01	2378.28
5	2403.76	2404.34	2409.25	2411.82	2410.93	2405.52	2399.87	2392.97	2387.86	2386.77	2381.55	2378.27
6	2403.50	2404.47	2409.28	2411.85	2411.02	2405.59	2399.58	2392.57	2387.88	2386.64	2381.30	2378.13
7	2403.31	2404.63	2409.36	2411.83	2410.83	2405.42	2399.35	2392.43	2387.97	2386.52	2381.32	2377.91
8	2403.17	2404.78	2409.45	2411.86	2410.51	2405.13	2399.12	2392.43	2388.03	2386.34	2381.13	2377.69
9	2403.19	2404.95	2409.55	2411.93	2410.16	2404.82	2399.07	2392.26	2388.07	2386.25	2380.81	2377.47
10	2403.31	2405.09	2409.65	2411.98	2409.80	2404.49	2399.09	2391.98	2388.14	2386.23	2380.51	2377.34
11	2403.30	2405.22	2409.77	2411.89	2409.47	2404.20	2398.93	2391.85	2388.18	2386.15	2380.28	2377.32
12	2403.35	2405.35	2409.87	2411.77	2409.40	2404.15	2398.70	2391.59	2388.21	2386.04	2380.13	2377.24
13	2403.32	2405.51	2410.11	2411.63	2409.45	2404.27	2398.43	2391.15	2388.25	2385.88	2380.05	2377.08
14	2403.23	2405.73	2410.54	2411.48	2409.26	2404.11	2398.14	2391.04	2388.28	2385.69	2380.03	2376.89
15	2403.15	2406.22	2410.83	2411.26	2408.96	2403.83	2398.00	2391.13	2388.31	2385.46	2379.93	2376.73
16	2403.31	2406.77	2410.96	2411.26	2408.66	2403.54	2398.02	2391.06	2388.34	2385.34	2379.78	2376.51
17	2403.71	2406.92	2411.12	2411.35	2408.29	2403.23	2398.08	2391.03	2388.39	2385.29	2379.62	2376.40
18	2403.86	2407.06	2411.34	2411.33	2407.89	2402.93	2398.14	2391.05	2388.44	2385.27	2379.55	2376.35
19	2403.84	2407.24	2411.40	2411.29	2407.79	2402.87	2397.96	2391.11	2388.50	2385.17	2379.39	2376.25
20	2403.76	2407.36	2411.48	2411.27	2407.83	2402.89	2397.69	2391.04	2388.55	2385.03	2379.30	2376.15
21	2403.65	2407.51	2411.61	2411.25	2407.89	2402.70	2397.39	2390.70	2388.58	2384.87	2379.28	2376.01
22	2403.52	2407.66	2411.61	2411.29	2407.69	2402.65	2397.08	2390.12	2388.61	2384.63	2379.19	2375.83
23	2403.58	2407.80	2411.56	2411.37	2407.38	2402.43	2396.64	2389.59	2388.47	2384.47	2379.05	2375.62
24	2403.75	2407.85	2411.65	2411.36	2407.07	2402.12	2396.47	2388.97	2388.27	2384.42	2378.87	2375.55
25	2403.70	2407.92	2411.71	2411.31	2406.77	2401.70	2396.20	2388.59	2388.21	2384.42	2379.00	2375.61
26	2403.65	2408.06	2411.80	2411.24	2406.70	2401.55	2395.87	2388.38	2388.23	2384.23	2379.42	2375.68
27	2403.96	2408.23	2411.89	2411.18	2406.76	2401.58	2395.49	2388.05	2388.06	2383.96	2379.51	2375.73
28	2404.00	2408.37	2411.88	2411.21	2406.64	2401.37	2395.09	2387.87	2387.79	2383.66	2379.61	2375.78
29	2403.99	2408.51	2411.77	2411.30	---	2401.05	2394.66	2387.87	2387.53	2383.34	2379.56	2375.82
30	2404.08	2408.65	2411.70	2411.36	---	2400.71	2394.49	2387.88	2387.25	2383.17	2379.35	2375.88
31	2404.23	---	2411.73	2411.32	---	2400.38	---	2387.83	---	2383.14	2379.12	---
MEAN	2403.64	2406.30	2410.60	2411.53	2408.98	2403.53	2397.96	2390.92	2388.11	2385.35	2380.22	2376.84
MAX	2404.23	2408.65	2411.89	2411.98	2411.23	2406.41	2400.38	2394.48	2388.61	2386.99	2383.03	2378.81
MIN	2403.15	2404.14	2408.78	2411.18	2406.64	2400.38	2394.49	2387.83	2387.25	2383.14	2378.87	2375.55

WTR YR 1994 MEAN 2396.95 MAX 2411.98 MIN 2375.55

RIO GRANDE DE MANATI BASIN

50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA.--16.7 mi² (43.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	9.8	8.5	8.5	6.7	4.9	4.1	4.7	3.4	3.7	3.4	3.5
2	12	9.4	8.4	8.7	6.9	6.1	4.2	4.6	3.6	3.3	3.5	3.5
3	11	9.3	8.3	8.2	6.7	4.9	4.2	4.5	3.7	3.5	3.0	3.8
4	11	8.7	8.7	8.1	6.8	4.2	4.1	4.5	4.2	3.7	2.9	3.1
5	11	8.4	8.5	8.0	6.7	4.1	5.1	4.4	3.7	3.4	2.8	3.0
6	11	8.3	8.2	7.9	6.0	4.3	5.3	4.4	3.8	3.8	2.9	3.0
7	11	8.2	7.9	7.9	6.0	4.4	8.4	4.4	3.7	3.6	8.7	3.7
8	11	8.6	7.8	7.8	5.9	4.1	6.1	4.4	3.4	3.5	4.7	3.1
9	10	9.0	7.7	7.9	5.8	3.8	5.0	4.2	3.3	3.3	3.9	3.0
10	10	8.9	7.5	8.0	5.9	3.9	5.0	4.1	3.4	3.1	3.4	2.9
11	10	8.2	7.3	8.5	6.1	3.9	5.7	4.4	3.6	3.1	3.2	3.4
12	10	8.2	7.6	9.0	6.0	4.1	8.0	4.9	3.6	3.1	3.0	3.2
13	10	8.6	16	8.5	5.7	5.0	5.7	4.5	3.6	3.0	3.0	3.1
14	10	11	25	8.4	5.7	4.0	6.1	4.4	3.5	3.0	2.9	3.0
15	10	26	25	8.3	6.1	4.1	6.8	6.3	3.6	3.0	3.0	3.1
16	12	43	12	8.8	5.7	4.8	7.5	5.0	3.8	3.1	2.9	3.1
17	33	22	9.4	8.8	5.4	4.1	5.8	4.3	3.8	3.2	2.9	3.2
18	29	15	11	9.1	5.2	3.8	5.5	4.0	4.0	3.9	3.2	3.8
19	15	18	10	8.5	5.2	3.7	5.0	4.6	3.8	3.8	3.3	3.5
20	13	13	9.3	9.1	5.0	3.7	4.8	4.0	3.6	3.4	3.2	4.1
21	12	11	9.1	9.0	5.0	3.9	4.8	3.9	3.4	3.1	3.2	4.5
22	12	10	8.8	8.7	4.9	4.0	4.8	3.8	3.4	3.0	3.1	3.6
23	12	9.7	8.7	8.7	4.7	4.0	4.5	3.9	3.4	2.8	2.9	3.3
24	12	9.4	8.3	8.2	4.9	3.9	4.5	3.7	3.4	2.8	2.9	3.6
25	13	9.1	8.2	7.6	4.6	3.9	4.5	3.6	3.4	2.9	4.4	5.2
26	13	9.2	8.2	7.4	4.4	3.8	6.8	3.6	3.6	2.9	15	6.0
27	21	9.8	8.2	7.2	4.8	3.9	7.8	3.7	3.5	2.8	6.5	4.0
28	33	9.0	8.6	7.3	6.7	3.9	7.3	3.8	3.5	2.8	4.9	3.5
29	34	8.8	8.5	7.5	---	4.1	5.8	3.7	3.5	2.8	3.8	3.3
30	15	8.6	8.5	7.1	---	4.2	5.2	3.6	3.6	3.1	3.3	3.3
31	11	---	8.4	6.8	---	4.2	---	3.4	---	3.2	3.2	---
TOTAL	452	356.2	307.6	253.5	159.5	129.7	168.4	131.3	107.8	99.7	123.0	106.4
MEAN	14.6	11.9	9.92	8.18	5.70	4.18	5.61	4.24	3.59	3.22	3.97	3.55
MAX	34	43	25	9.1	6.9	6.1	8.4	6.3	4.2	3.9	15	6.0
MIN	10	8.2	7.3	6.8	4.4	3.7	4.1	3.4	3.3	2.8	2.8	2.9
AC-FT	897	707	610	503	316	257	334	260	214	198	244	211
CFSM	.87	.71	.59	.49	.34	.25	.34	.25	.22	.19	.24	.21
IN.	1.01	.79	.69	.56	.36	.29	.38	.29	.24	.22	.27	.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

	MEAN	92.2	56.4	29.3	20.5	13.7	15.3	27.7	48.5	19.7	16.3	21.2	50.8
MAX	392	205	108	83.4	30.9	59.9	80.2	179	78.6	104	152	149	
(WY)	1971	1971	1971	1992	1971	1972	1980	1981	1979	1979	1979	1979	
MIN	14.6	8.14	8.95	6.62	5.70	4.18	5.61	4.24	3.59	3.22	3.97	3.55	
(WY)	1994	1974	1992	1973	1994	1994	1994	1994	1994	1994	1994	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1969 - 1994

ANNUAL TOTAL	9284.0	2395.1	
ANNUAL MEAN	25.4	6.56	
HIGHEST ANNUAL MEAN			34.2
LOWEST ANNUAL MEAN			79.3
HIGHEST DAILY MEAN	485	Apr 29	3870
LOWEST DAILY MEAN	7.3	Dec 11	2.8
ANNUAL SEVEN-DAY MINIMUM	7.7	Dec 6	2.8
INSTANTANEOUS PEAK FLOW			182
INSTANTANEOUS PEAK STAGE			8.66
INSTANTANEOUS LOW FLOW			2.6
ANNUAL RUNOFF (AC-FT)	18410	4750	24740
ANNUAL RUNOFF (CFSM)	1.52	.39	2.04
ANNUAL RUNOFF (INCHES)	20.68	5.34	27.78
10 PERCENT EXCEEDS	33	11	63
50 PERCENT EXCEEDS	13	4.8	13
90 PERCENT EXCEEDS	9.0	3.1	5.5

RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36". Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Hwy 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Vales, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi² (332 km²), excludes 6.0 mi² (15.5 km²), the runoff from which is diverted through El Guineo and de Matrullas reservoirs.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office and in the National Water Data Storage and Retrieval System, Washington, D.C.); February 1959 to September 1960 (monthly discharge measurements only); October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi² (342 km²).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to Apr. 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	80	67	54	51	49	e40	29	23	15	16	26
2	92	79	64	54	50	39	e35	27	22	17	19	24
3	81	75	64	56	50	39	e30	25	28	17	14	21
4	78	73	61	55	50	37	e25	25	28	17	19	20
5	103	76	61	53	50	34	e26	24	24	16	10	18
6	73	118	61	52	50	34	48	24	20	19	10	16
7	67	74	59	52	48	45	30	25	19	25	117	18
8	66	77	57	51	45	32	28	24	19	18	78	22
9	64	92	57	47	45	31	29	24	18	13	39	19
10	64	92	57	48	45	31	26	29	18	13	29	17
11	64	77	54	53	45	29	26	60	17	13	21	17
12	61	75	54	59	45	29	56	38	17	12	15	18
13	61	74	69	59	43	29	51	25	17	13	13	20
14	59	159	116	54	43	28	30	26	17	13	12	18
15	59	443	108	54	44	29	40	27	16	13	11	17
16	57	587	71	52	44	29	38	43	19	13	11	17
17	107	340	61	52	43	28	34	66	17	17	9.6	17
18	162	215	60	56	42	28	31	39	17	17	11	17
19	76	248	64	58	e41	28	28	30	17	18	17	84
20	67	147	64	54	e41	27	25	28	17	19	17	49
21	63	117	63	59	e41	25	23	25	17	16	42	39
22	61	101	57	55	41	24	26	24	15	14	36	33
23	64	87	57	54	41	23	24	22	15	12	19	24
24	81	81	57	51	42	23	24	22	15	11	16	22
25	68	78	56	50	43	e23	24	23	13	9.6	18	23
26	65	74	54	50	43	e25	25	22	13	9.6	20	27
27	144	72	53	50	44	e24	148	24	14	9.0	40	27
28	276	69	52	50	114	e23	75	25	14	8.5	28	18
29	249	67	52	50	---	e25	48	38	14	9.0	81	15
30	107	66	54	52	---	e26	36	30	15	9.6	29	15
31	85	---	54	52	---	e25	---	25	---	12	20	---
TOTAL	2848	4013	1938	1646	1324	921	1129	918	535	438.3	837.6	718
MEAN	91.9	134	62.5	53.1	47.3	29.7	37.6	29.6	17.8	14.1	27.0	23.9
MAX	276	587	116	59	114	49	148	66	28	25	117	84
MIN	57	66	52	47	41	23	23	22	13	8.5	9.6	15
AC-FT	5650	7960	3840	3260	2630	1830	2240	1820	1060	869	1660	1420
CFSM	.72	1.05	.49	.41	.37	.23	.29	.23	.14	.11	.21	.19
IN.	.83	1.17	.56	.48	.38	.27	.33	.27	.16	.13	.24	.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 1994, BY WATER YEAR (WY)

	MEAN	439	350	264	191	170	140	268	423	157	107	153	274
MAX	2422	1006	1296	678	1392	477	1174	2293	458	438	1212	994	
(WY)	1971	1971	1966	1952	1950	1969	1969	1985	1979	1979	1979	1979	
MIN	91.9	67.6	62.5	53.1	41.6	29.7	28.5	29.6	17.8	14.1	27.0	23.9	
(WY)	1994	1974	1994	1994	1994	1957	1994	1984	1994	1994	1994	1994	

SUMMARY STATISTICS FOR 1993 CALENDAR YEAR FOR 1994 WATER YEAR WATER YEARS 1946 - 1994

	75865	17265.9	246	1971
ANNUAL TOTAL				
ANNUAL MEAN	208	47.3	520	1994
HIGHEST ANNUAL MEAN			47.3	1994
LOWEST ANNUAL MEAN			520	1971
HIGHEST DAILY MEAN	3710	Apr 29	42700	May 18 1985
LOWEST DAILY MEAN	52	Dec 28	8.5	Jul 28 1994
ANNUAL SEVEN-DAY MINIMUM	54	Dec 25	9.5	Jul 28 1994
INSTANTANEOUS PEAK FLOW			1060	Oct 28 1970
INSTANTANEOUS PEAK STAGE			2.78	Oct 28 1970
ANNUAL RUNOFF (AC-FT)	150500	34250	178000	
ANNUAL RUNOFF (CFSM)	1.62	.37	1.92	
ANNUAL RUNOFF (INCHES)	22.05	5.02	26.08	
10 PERCENT EXCEEDS	422	78	447	
50 PERCENT EXCEEDS	109	35	115	
90 PERCENT EXCEEDS	62	15	53	

e Estimated

RIO GRANDE DE MANATI BASIN

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, RP

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Río Cialitos, 0.5 mi (0.8 km) north of Ciales plaza.

DRAINAGE AREA.--136 mi² (352 km²) this excludes the 6 mi² (15.5 km²) upstream from Lago El Guineo and Lago de Matrullas, flow from which is diverted to Río Jacaguas.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
05...	1015	141	245	8.0	27.0	23	7.8	97	<10	K1300	290
DEC											
06...	0925	83	270	8.0	26.0	6.1	4.8	58	<10	K91	K150
FEB 1994											
04...	0800	61	265	8.0	24.0	6.3	3.6	42	<10	K64	73
APR											
06...	1240	89	268	8.0	28.0	--	8.8	112	--	240	K170
JUN											
17...	1500	37	258	8.5	30.5	1.8	10.0	132	<10	460	K45
AUG											
11...	1000	40	288	7.5	27.0	7.7	6.8	85	25	440	300

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY, WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
05...	110	27	9.3	12	0.5	2.0	100	0.6	9.1	12	0.10
DEC											
06...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
04...	--	--	--	--	--	--	110	--	--	--	--
APR											
06...	--	--	--	--	--	--	110	<0.5	--	--	--
JUN											
17...	--	--	--	--	--	--	110	--	--	--	--
AUG											
11...	120	30	10	15	0.6	2.8	110	--	16	16	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS Ba)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM, TOTAL RECOVERABLE (UG/L AS Cd)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS Cr)
OCT 1993											
05...	29	160	61.1	35	--	--	<1	<100	20	<1	<1
DEC											
06...	--	--	--	13	<0.20	0.060	--	--	--	--	--
FEB 1994											
04...	--	--	--	14	<0.20	0.070	--	--	--	--	--
APR											
06...	--	--	--	--	<0.20	0.090	<1	<100	30	<1	<1
JUN											
17...	--	--	--	5	<0.20	0.030	--	--	--	--	--
AUG											
11...	26	182	19.7	18	0.30	0.090	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales plaza.

DRAINAGE AREA.--17.0 mi² (44.0 km²).

PERIOD OF RECORD.--Water years 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993										
05...	0900	24	240	8.2	24.0	1.8	6.2	73	<10	580
DEC 06...	1045	15	262	8.1	22.5	1.2	4.9	55	12	2900
FEB 1994										
04...	0945	13	265	7.8	21.0	1.0	4.0	44	<10	430
APR 28...	1300	6.0	262	8.1	26.5	2.3	8.6	106	<10	K15000
JUN 20...	1255	2.3	273	7.8	29.5	2.6	8.0	104	11	K63
AUG 11...	1135	3.5	301	7.7	26.5	2.7	7.8	96	30	K9800

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
05...	100	30	6.7	12	0.5	1.7	99	<0.5	6.3	10	0.10
DEC 06...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
04...	--	--	--	--	--	--	120	--	--	--	--
APR 28...	110	33	7.2	13	0.5	1.9	110	<0.5	9.5	13	0.10
JUN 20...	--	--	--	--	--	--	120	--	--	--	--
AUG 11...	130	39	7.3	13	0.5	1.8	120	--	15	14	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
05...	32	158	10.2	6	--	--	<1	<100	20	<1	<1
DEC 06...	--	--	--	4	<0.20	0.070	--	--	--	--	--
FEB 1994											
04...	--	--	--	4	<0.20	0.110	--	--	--	--	--
APR 28...	31	175	2.82	27	--	--	<1	100	20	<1	<1
JUN 20...	--	--	--	7	0.20	0.070	--	--	--	--	--
AUG 11...	24	186	1.75	14	0.30	0.090	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR

LOCATION.--Lat 18°25'52", long 66°31'37", Hydrologic Unit 21010002, at bridge on Highway 2, and 2.3 mi (3.7 km) west of Manati.

DRAINAGE AREA.--197 mi² (510 km²), approximately, of which about 38 mi² (98 km²) is partly or entirely noncontributing, excludes 6.0 mi² (15.5 km²) upstream from Lago El Guineo and Lago de Matrullas.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1963-68 (annual maximum discharge only), February 1970 to current year.

REVISED RECORDS.--WRD PR-86-1: 1970-71 (M), 1975, 1979, 1982-85 (P).

GAGE.--Water-stage recorder. Elevation of gage is 14 ft (4 m), from topographic map. Prior to 1968 crest-stage gage at same site and datum 3.57 ft (1.09 m) lower.

REMARKS.--Records fair except those for estimated daily discharges and May 1 to Sept 30, which are poor. Gage-height and precipitation satellite telemetry at station. Possible water extraction about 500 ft (152.4 m) upstream of gage by unknown source affecting low flow.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights to gage datum of major floods, pointed out by local residents, are as follows: Sept. 13, 1928, 36.6 ft (11.16 m), Sept. 27, 1932, 36.3 ft (11.06 m), and Aug. 4, 1945, 34.3 ft (10.45 m).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	129	119	98	76	90	49	65	52	63	50	64
2	170	121	119	103	75	58	80	48	49	61	57	67
3	155	117	117	102	e78	68	67	52	50	71	62	57
4	147	111	119	95	80	61	57	56	230	61	50	53
5	163	106	124	94	80	56	51	52	109	57	47	56
6	144	156	120	93	82	56	53	51	62	64	54	56
7	132	118	113	91	75	106	71	50	53	68	66	56
8	132	109	108	91	74	70	55	54	51	78	286	82
9	124	157	105	89	74	59	59	55	49	66	125	74
10	119	152	105	87	72	55	55	55	47	57	94	69
11	146	126	104	99	71	53	49	110	45	47	69	63
12	135	119	102	104	70	53	63	266	48	49	56	63
13	127	112	103	104	69	54	121	140	48	48	53	61
14	115	199	161	93	67	56	84	135	49	50	51	69
15	111	592	157	91	69	54	84	164	50	52	50	58
16	108	1160	138	88	73	52	101	110	55	55	51	52
17	147	794	113	93	70	56	92	401	70	135	53	54
18	210	418	116	93	66	55	83	272	62	79	60	59
19	145	366	127	97	65	51	73	150	62	44	65	53
20	122	260	117	94	66	49	63	102	65	42	86	249
21	115	208	108	105	65	47	58	79	62	44	89	82
22	110	178	104	97	66	47	58	62	62	39	130	86
23	108	159	99	90	66	48	59	55	60	33	71	68
24	125	147	101	89	69	49	58	52	59	33	58	48
25	115	141	98	83	67	47	56	51	60	32	54	50
26	110	132	96	83	66	46	56	51	65	33	47	54
27	175	132	96	82	64	51	107	49	62	33	57	56
28	319	129	104	80	102	47	200	53	63	33	92	59
29	597	124	106	80	---	46	111	54	60	33	100	52
30	212	126	101	84	---	50	78	75	56	37	108	52
31	149	---	95	80	---	51	---	60	---	45	63	---
TOTAL	4994	6898	3495	2852	2017	1741	2251	3029	1915	1642	2354	2022
MEAN	161	230	113	92.0	72.0	56.2	75.0	97.7	63.8	53.0	75.9	67.4
MAX	597	1160	161	105	102	106	200	401	230	135	286	249
MIN	108	106	95	80	64	46	49	48	45	32	47	48
AC-FT	9910	13680	6930	5660	4000	3450	4460	6010	3800	3260	4670	4010
CFSM	.82	1.17	.57	.47	.37	.29	.38	.50	.32	.27	.39	.34
IN.	.94	1.30	.66	.54	.38	.33	.43	.57	.36	.31	.44	.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1994, BY WATER YEAR (WY)

	MEAN	775	566	380	253	201	190	379	680	243	161	220	420
MAX	2958	1803	1498	771	444	521	1037	3178	747	577	1644	1510	1510
(WY)	1971	1971	1971	1972	1988	1972	1993	1985	1987	1979	1979	1979	1979
MIN	161	123	101	92.0	72.0	56.2	60.1	93.7	63.8	53.0	67.9	67.4	67.4
(WY)	1994	1974	1992	1994	1994	1994	1984	1989	1994	1994	1984	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1970 - 1994

ANNUAL TOTAL	127670	35210	
ANNUAL MEAN	350	96.5	
HIGHEST ANNUAL MEAN			371
LOWEST ANNUAL MEAN			756
HIGHEST DAILY MEAN	9770	Apr 30	1160
LOWEST DAILY MEAN	81	Apr 7	32
ANNUAL SEVEN-DAY MINIMUM	87	Apr 2	33
INSTANTANEOUS PEAK FLOW			1260
INSTANTANEOUS PEAK STAGE			15.09
ANNUAL RUNOFF (AC-FT)	253200	69840	33.79
ANNUAL RUNOFF (CFSM)	1.78	.49	1.88
ANNUAL RUNOFF (INCHES)	24.11	6.65	25.56
10 PERCENT EXCEEDS	674	147	652
50 PERCENT EXCEEDS	175	71	169
90 PERCENT EXCEEDS	111	49	89

e Estimated

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCHI FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)
OCT 1993												
26...	1130	110	310	8.0	28.0	11	4.0	50	5200	310	130	40
DEC												
17...	1050	110	292	7.5	24.5	4.5	5.4	63	4200	22000	130	38
FEB 1994												
23...	0955	66	315	7.6	25.0	0.50	5.7	68	470	27	140	44
APR												
29...	1115	102	299	7.6	27.5	8.0	6.8	86	4600	580	130	38
JUN												
24...	1330	61	252	7.8	30.0	2.9	9.8	128	K1300	240	120	36
AUG												
25...	1145	56	327	7.7	29.0	1.0	9.8	126	K770	K150	150	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1993											
26...	7.7	12	0.5	2.1	130	8.5	13	<0.10	21	191	187
DEC											
17...	7.9	11	0.4	1.6	120	8.8	12	<0.10	22	177	180
FEB 1994											
23...	7.9	12	0.4	1.3	140	7.6	13	<0.10	15	188	186
APR											
29...	8.5	12	0.5	1.8	110	9.7	15	0.10	21	180	172
JUN											
24...	7.1	12	0.5	0.70	120	6.9	14	0.10	8.0	169	158
AUG											
25...	8.1	13	0.4	1.2	140	8.3	12	0.20	20	183	192

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 1993											
26...	55.5	0.740	0.070	0.09	0.50	0.070	0.070	0.060	0.18	20	43
DEC											
17...	53.4	0.780	0.020	0.03	<0.20	0.040	0.040	0.050	0.15	--	--
FEB 1994											
23...	33.8	0.160	0.030	0.04	0.20	0.020	0.030	0.010	0.03	20	27
APR											
29...	49.6	--	--	--	--	--	--	--	--	--	--
JUN											
24...	27.6	0.140	0.020	0.03	0.20	0.030	0.030	0.020	0.06	<10	31
AUG											
25...	29.0	0.100	0.050	0.06	0.60	0.030	0.040	0.020	0.06	<10	36

K = non-ideal count

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM, DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY, DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1993 26...	<3	8	<4	23	<0.1	<10	1	<1	<1.0	190	9
DEC 17...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994 23...	<3	12	<4	25	--	<10	<1	<1	<1.0	220	6
APR 29...	--	--	--	--	--	--	--	--	--	--	--
JUN 24...	<3	15	<4	28	0.3	10	<1	<1	<1.0	210	7
AUG 25...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 24...	1330	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994 24...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHERE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994 24...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993 26...	1130	110	44	13.1	83
DEC 17...	1050	110	18	5.6	91
FEB 1994 23...	0955	66	74	13.2	45
APR 29...	1115	102	34	9.36	86
JUN 24...	1330	61	25	4.12	85
AUG 25...	1145	56	44	6.65	73

LAGUNA TORTUGUERO BASIN

103

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manatí, and 4.4 mi (7.1 km) northwest of Vega Baja plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1964-66, 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)
OCT 1993												
08...	0820	25	1250	7.8	27.5	8.0	105	34	27	43	157	<0.5
DEC 08...	0830	22	1110	8.2	26.0	8.7	111	29	36	31	142	--
FEB 1994												
11...	0825	4.5	1240	8.0	25.5	1.8	20	34	20	320	110	--
APR 12...	1120	5.8	1180	7.9	28.0	7.0	89	24	K29	380	100	<0.5
JUN 17...	1225	3.5	1430	7.8	29.0	6.0	78	44	K210	K66	98	--
AUG 04...	0750	2.8	1470	8.0	29.0	6.4	83	39	80	430	98	--

DATE	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
OCT 1993												
08...	12	0.90	0.90	<0.010	70	<10	50	<10	<10	<0.010	3	0.05
DEC 08...	4	1.3	1.3	<0.010	--	--	--	--	--	--	--	--
FEB 1994												
11...	5	1.1	1.1	0.010	--	--	--	--	--	--	--	--
APR 12...	11	1.8	1.8	0.020	80	<10	50	20	<10	<0.010	2	0.12
JUN 17...	6	1.4	1.4	0.040	--	--	--	--	--	--	--	--
AUG 04...	3	1.6	1.6	0.010	--	--	--	--	--	--	--	--

K = non-ideal count

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

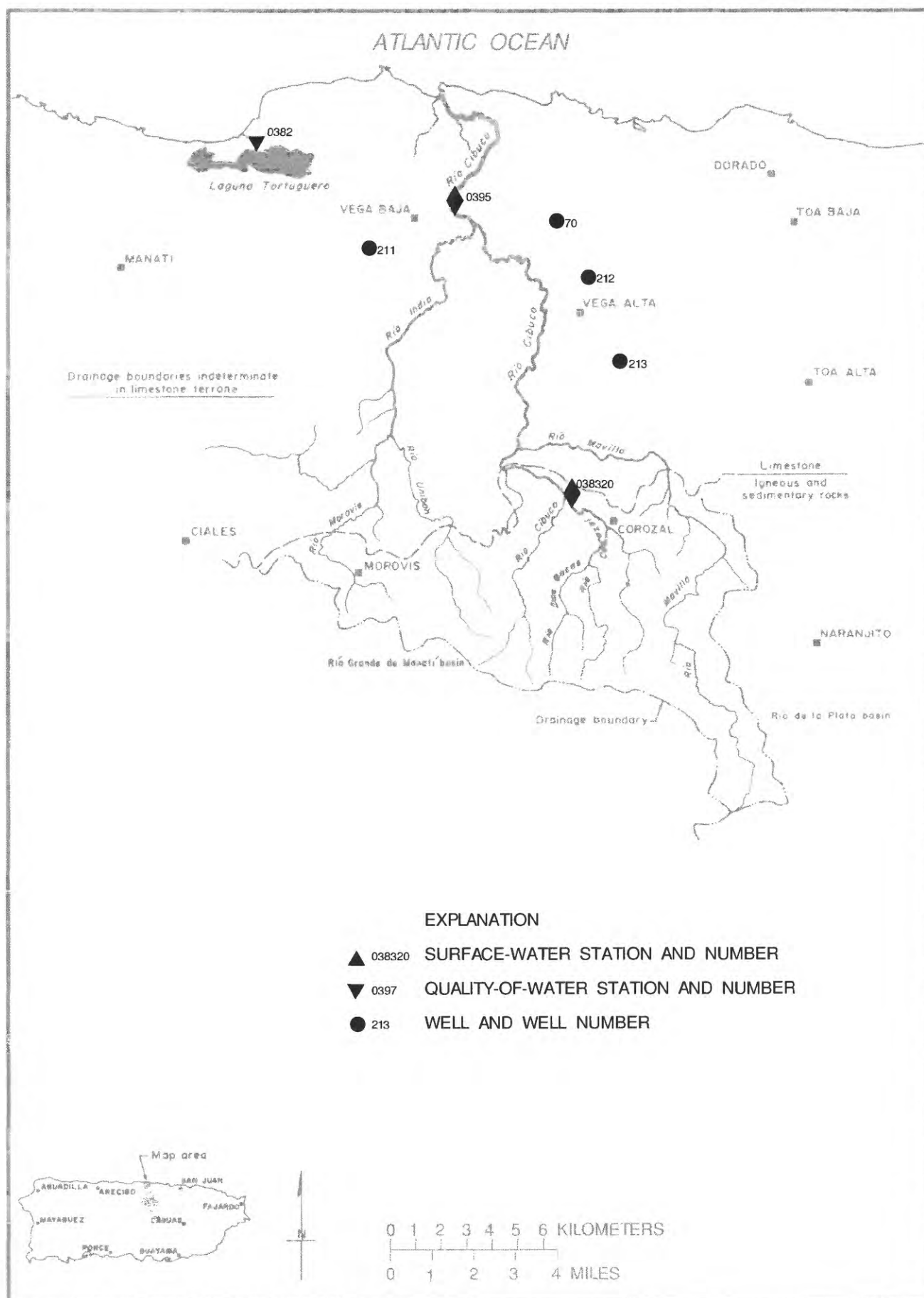


Figure 17.--Río Cibuco basin.

RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR

LOCATION.--Lat 18°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from junction with Río Corozal, and 1.4 mi (2.3 km) northwest of Corozal.

DRAINAGE AREA.--15.1 mi² (39.1 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Daily discharge affected by sewage treatment plant about 0.6 mi (1.0 km) upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	11	11	8.5	6.2	7.0	4.2	3.9	1.6	1.9	4.7	8.6
2	15	9.8	11	10	6.5	7.4	4.2	3.5	1.7	2.4	3.0	2.6
3	15	9.2	11	8.8	6.3	6.8	4.2	3.1	1.7	2.0	2.4	1.9
4	16	9.2	13	7.7	7.3	5.4	3.7	3.1	2.0	1.9	2.7	1.4
5	18	8.8	12	8.0	7.8	8.0	15	2.7	2.0	2.0	1.7	1.4
6	14	8.3	11	8.4	7.1	7.7	9.0	2.6	1.7	7.1	1.7	2.2
7	30	8.2	10	8.4	6.9	5.8	4.3	2.9	1.9	3.9	e20	2.1
8	20	12	10	7.9	7.0	5.9	3.9	3.1	1.6	2.9	e28	2.0
9	15	15	9.5	7.9	6.7	5.3	3.7	3.1	1.7	1.9	e12	1.9
10	13	10	9.4	7.8	7.4	5.3	7.1	3.5	1.4	1.4	e9.9	1.6
11	13	11	9.4	16	6.0	5.0	6.6	3.1	1.6	1.5	4.7	2.3
12	13	9.9	9.4	9.4	6.1	5.4	9.7	3.5	1.8	1.4	3.5	2.6
13	12	16	9.2	8.3	5.9	5.6	5.4	7.7	1.3	1.4	3.2	2.6
14	11	40	9.3	7.8	7.3	4.9	8.7	9.3	1.4	1.3	2.3	2.4
15	11	62	8.8	7.1	6.6	5.8	9.9	5.2	1.6	1.8	1.9	2.1
16	13	70	9.1	7.7	6.3	6.3	5.4	5.8	1.2	1.1	1.9	2.1
17	12	52	8.7	9.0	5.7	5.8	9.9	22	1.5	.91	1.5	2.0
18	10	46	14	8.0	5.4	5.7	7.2	7.4	2.0	1.8	e9.5	2.4
19	11	34	10	7.6	5.3	5.7	4.5	4.2	2.2	1.8	e9.6	7.7
20	11	25	10	11	5.7	5.6	4.3	3.3	1.7	1.4	e25	6.6
21	13	18	9.2	9.3	5.7	5.2	4.2	2.8	1.5	1.6	e12	4.8
22	10	15	8.7	7.5	5.8	5.3	3.6	2.8	1.3	2.1	6.3	5.1
23	11	14	8.8	7.2	5.4	5.0	3.2	2.7	1.2	1.7	4.5	3.3
24	10	13	8.0	7.4	5.7	4.9	2.8	2.3	1.1	1.6	4.3	2.9
25	9.5	13	7.9	6.8	5.8	4.7	2.7	2.4	1.0	1.9	3.5	15
26	8.4	12	8.1	6.4	6.1	4.2	2.6	2.1	1.0	1.9	2.7	13
27	8.6	12	9.0	6.7	38	4.7	12	1.7	1.2	1.8	2.6	5.5
28	9.7	18	11	7.2	15	4.6	19	1.9	2.6	2.4	3.1	3.7
29	13	14	8.6	7.5	---	5.2	28	2.3	2.4	3.1	2.9	2.3
30	9.2	11	8.7	6.6	---	5.8	7.8	1.7	2.1	3.4	1.6	2.2
31	8.6	---	8.0	6.3	---	4.5	---	1.7	---	4.5	1.7	---
TOTAL	400.0	607.4	301.8	254.2	217.0	174.5	216.8	127.4	49.0	67.81	194.4	116.3
MEAN	12.9	20.2	9.74	8.20	7.75	5.63	7.23	4.11	1.63	2.19	6.27	3.88
MAX	30	70	14	16	38	8.0	28	22	2.6	7.1	28	15
MIN	8.4	8.2	7.9	6.3	5.3	4.2	2.6	1.7	1.0	.91	1.5	1.4
AC-FT	793	1200	599	504	430	346	430	253	97	135	386	231
CFSM	.85	1.34	.64	.54	.51	.37	.48	.27	.11	.14	.42	.26
IN.	.99	1.50	.74	.63	.53	.43	.53	.31	.12	.17	.48	.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1994, BY WATER YEAR (WY)

	MEAN	41.2	45.0	36.1	24.5	21.1	22.4	35.3	45.8	15.0	12.2	16.6	25.9
MAX	135	155	169	69.6	51.3	65.1	111	157	44.4	34.6	50.8	73.2	
(WY)	1991	1971	1971	1992	1988	1981	1973	1986	1987	1979	1979	1979	
MIN	8.05	8.15	6.86	8.20	7.75	4.36	3.32	3.20	1.63	2.19	3.44	3.88	
(WY)	1979	1974	1979	1994	1994	1984	1984	1994	1994	1994	1978	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1969 - 1994

ANNUAL TOTAL	10922.7	2726.61	
ANNUAL MEAN	29.9	7.47	28.5
HIGHEST ANNUAL MEAN			56.5
LOWEST ANNUAL MEAN			7.47
HIGHEST DAILY MEAN	705	Apr 11	2370
LOWEST DAILY MEAN	5.5	Mar 22	.91
ANNUAL SEVEN-DAY MINIMUM	6.0	Apr 1	1.2
INSTANTANEOUS PEAK FLOW			220
INSTANTANEOUS PEAK STAGE			5.05
ANNUAL RUNOFF (AC-FT)	21670	5410	20680
ANNUAL RUNOFF (CFSM)	1.98	.49	1.89
ANNUAL RUNOFF (INCHES)	26.91	6.72	25.68
10 PERCENT EXCEEDS	52	13	49
50 PERCENT EXCEEDS	15	5.8	13
90 PERCENT EXCEEDS	8.6	1.7	5.6

e Estimated

RIO CIBUCO BASIN

107

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1993											
25...	1030	10	343	7.9	26.0	0.30	3.6	44	12	K1300	400
DEC											
13...	0845	9.0	371	7.9	22.0	0.50	4.9	56	<10	K1500	240
FEB 1994											
08...	0835	6.6	382	7.7	22.0	0.70	5.3	60	27	7600	280
APR											
26...	0810	2.7	450	7.8	25.0	7.8	4.4	53	<10	2000	K150
JUN											
21...	0815	1.1	576	7.4	27.0	0.50	5.6	70	21	K6600	970
AUG											
05...	1310	1.9	624	7.8	27.0	0.50	7.6	95	14	K1200	K1000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
25...	130	34	12	20	0.8	3.2	130	<0.5	14	21	0.20
DEC											
13...	--	--	--	--	--	--	130	--	--	--	--
FEB 1994											
08...	--	--	--	--	--	--	130	--	--	--	--
APR											
26...	83	22	6.7	26	1	1.9	150	<0.5	17	24	0.10
JUN											
21...	--	--	--	--	--	--	120	--	--	--	--
AUG											
05...	210	59	14	46	1	8.5	160	--	21	61	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
25...	32	214	5.96	<1	0.30	0.410	<1	100	20	<1	<1
DEC											
13...	--	--	--	2	<0.20	0.400	--	--	--	--	--
FEB 1994											
08...	--	--	--	4	0.40	0.750	--	--	--	--	--
APR											
26...	35	223	1.60	62	--	--	<1	100	30	<1	<1
JUN											
21...	--	--	--	5	0.90	2.70	--	--	--	--	--
AUG											
05...	35	341	1.71	7	0.60	2.10	--	--	--	--	--

K = non-ideal count

RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Hwy 2, 0.6 mi (1.0 km) downstream from Rio Indio, and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA.--99.1 mi² (256.7 km²), of which 25.4 mi² (65.8 km²), does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above mean sea level.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 11, 1965 reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft³/s (793 m³/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	124	37	46	37	24	30	15	34	13	16	14	15
2	76	39	44	45	24	25	16	23	13	21	12	40
3	83	35	43	38	24	26	15	20	14	24	9.6	20
4	114	34	49	33	26	22	13	19	13	16	8.5	15
5	119	32	65	33	27	32	13	18	14	13	8.9	12
6	81	32	49	32	26	29	65	18	14	14	12	13
7	75	31	45	31	24	24	25	17	13	53	13	14
8	87	30	43	31	24	20	18	17	13	47	86	15
9	42	69	40	32	24	20	17	16	13	17	37	13
10	41	55	40	35	23	20	22	16	13	13	86	13
11	51	37	39	88	23	19	30	22	12	11	34	13
12	123	39	38	59	23	21	38	28	12	9.5	18	15
13	54	38	37	34	24	23	36	40	11	9.1	15	14
14	45	179	36	29	24	20	21	104	11	8.9	14	13
15	41	393	37	30	27	19	37	91	12	8.8	12	13
16	43	507	36	29	25	19	32	57	12	9.0	11	13
17	110	377	34	33	24	19	24	319	14	9.8	11	13
18	50	308	56	33	24	18	43	265	13	9.7	13	13
19	42	269	50	29	23	17	26	151	13	10	51	13
20	43	151	45	40	22	17	22	51	12	11	30	82
21	44	111	37	55	23	16	20	34	11	10	130	41
22	46	87	36	37	23	16	19	26	10	9.7	44	35
23	43	74	34	31	23	15	17	22	10	9.2	22	28
24	39	68	34	30	23	15	16	21	11	8.6	30	21
25	37	63	32	29	23	15	15	19	11	8.1	35	24
26	36	58	32	27	22	15	15	17	12	8.2	18	164
27	37	58	34	26	22	41	28	15	10	8.3	14	49
28	39	53	45	26	119	15	93	14	12	8.8	13	28
29	55	72	39	28	---	15	144	14	17	9.5	17	22
30	38	52	36	28	---	18	139	14	16	11	13	17
31	34	---	35	24	---	16	---	13	---	11	11	---
TOTAL	1892	3388	1266	1092	763	637	1034	1535	375	433.2	843.0	801
MEAN	61.0	113	40.8	35.2	27.2	20.5	34.5	49.5	12.5	14.0	27.2	26.7
MAX	124	507	65	88	119	41	144	319	17	53	130	164
MIN	34	30	32	24	22	15	13	13	10	8.1	8.5	12
AC-FT	3750	6720	2510	2170	1510	1260	2050	3040	744	859	1670	1590
CFSM	.62	1.14	.41	.36	.27	.21	.35	.50	.13	.14	.27	.27
IN.	.71	1.27	.48	.41	.29	.24	.39	.58	.14	.16	.32	.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1994, BY WATER YEAR (WY)

	MEAN	160	185	179	93.8	88.3	90.1	166	213	75.2	54.3	81.8	117
MAX	559	523	1316	209	190	339	671	655	245	162	461	450	
(WY)	1986	1980	1982	1988	1988	1990	1987	1985	1987	1979	1979	1979	
MIN	45.9	40.0	30.5	35.2	27.2	20.5	16.2	24.7	12.5	14.0	21.2	26.7	
(WY)	1974	1974	1979	1994	1994	1994	1984	1977	1994	1994	1978	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1973 - 1994

ANNUAL TOTAL	50373	14059.2											
ANNUAL MEAN	138	38.5											
HIGHEST ANNUAL MEAN										126			
LOWEST ANNUAL MEAN										236			1982
HIGHEST DAILY MEAN	3260	Apr 30				507	Nov 16			38.5			1994
LOWEST DAILY MEAN	28	Apr 6				8.1	Jul 25			14600	Dec 13		1981
ANNUAL SEVEN-DAY MINIMUM	31	Apr 1				8.7	Jul 23			7.4	Jul 24		1977
INSTANTANEOUS PEAK FLOW						1040	May 17			8.5	Jul 21		1977
INSTANTANEOUS PEAK STAGE						7.91	May 17			34000	Apr 12		1987
INSTANTANEOUS LOW FLOW						7.5	Jul 26			19.10	Apr 12		1987
ANNUAL RUNOFF (AC-FT)	99910					27890				7.4	Jul 24		1977
ANNUAL RUNOFF (CFSM)	1.39					.39				91080			
ANNUAL RUNOFF (INCHES)	18.91					5.28				1.27			
10 PERCENT EXCEEDS	301					70				17.24			
50 PERCENT EXCEEDS	65					24				226			
90 PERCENT EXCEEDS	37					12				59			

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
08...	1045	67	382	7.5	26.0	25	5.7	69	13	2700	K1300
DEC 08...	1055	40	425	7.8	25.0	2.7	3.2	38	<10	K660	660
FEB 1994											
11...	1030	25	423	7.7	24.0	1.6	1.6	19	<10	400	100
APR 12...	1430	38	399	7.3	27.5	--	8.4	106	--	K160	200
JUN 21...	1140	11	432	7.6	29.0	0.20	5.6	72	13	K140	K10
AUG 04...	1025	8.2	465	7.6	28.5	0.20	3.0	38	<10	300	510

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
08...	160	48	9.5	16	0.6	3.8	200	<0.5	15	23	0.20
DEC 08...	--	--	--	--	--	--	180	--	--	--	--
FEB 1994											
11...	--	--	--	--	--	--	180	--	--	--	--
APR 12...	--	--	--	--	--	--	160	<0.5	--	--	--
JUN 21...	--	--	--	--	--	--	190	--	--	--	--
AUG 04...	190	60	10	23	0.7	2.7	200	--	12	33	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
08...	23	258	46.6	46	0.40	0.240	<1	<100	20	<1	2
DEC 08...	--	--	--	7	--	--	--	--	--	--	--
FEB 1994											
11...	--	--	--	7	0.30	0.250	--	--	--	--	--
APR 12...	--	--	--	--	--	--	1	<100	40	<1	<1
JUN 21...	--	--	--	1	0.20	0.420	--	--	--	--	--
AUG 04...	14	275	6.05	<1	0.20	0.290	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

RIO DE LA PLATA BASIN

50039990 LAGO CARITE AT GATE TOWER

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA.--8.20 mi² (21.24 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1989 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial and agricultural purposes in the Guayama Area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a length of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 hm³). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,787.61 ft (544.86 m), Jan. 5, 1992; minimum elevation, 1,761.48 ft (536.90 m), June 13, 14, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,781.50 ft (543.00 m), Oct. 1; minimum elevation, 1,767.28 ft (538.67 m), Sept. 10.

Capacity Table

(based on Data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,746	0	1,775	6,194
1,760	2,471	1,780	7,704
1,769	4,561	1,790	11,048

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1781.47	1781.18	1781.44	1780.39	1779.44	1779.01	1777.39	1775.39	1773.43	1772.12	1770.01	1767.79
2	1781.43	1781.13	1781.40	1780.36	1779.40	1778.99	1777.31	1775.32	1773.33	1772.07	1769.89	1767.77
3	1781.40	1781.11	1781.34	1780.34	1779.34	1778.96	1777.26	1775.25	1773.24	1772.07	1769.75	1767.64
4	1781.39	1781.08	1781.38	1780.32	1779.33	1778.89	1777.16	1775.21	1773.16	1772.04	1769.64	1767.54
5	1781.40	1781.05	1781.36	1780.35	1779.25	1778.87	1777.12	1775.16	1773.07	1772.00	1769.50	1767.44
6	1781.49	1781.01	1781.32	1780.34	1779.20	1778.82	1777.05	1775.08	1773.09	1771.95	1769.36	1767.47
7	1781.47	1780.98	1781.28	1780.33	1779.17	1778.73	1776.98	1775.02	1773.02	1771.92	1769.22	1767.38
8	1781.45	1780.97	1781.20	1780.31	1779.12	1778.72	1776.91	1775.00	1772.93	1771.88	1769.10	1767.37
9	1781.43	1780.93	1781.19	1780.33	1779.03	1778.67	1776.82	1775.11	1772.82	1771.83	1769.00	1767.33
10	1781.40	1780.90	1781.14	1780.33	1779.02	1778.66	1776.75	1775.33	1772.75	1771.76	1768.94	1767.36
11	1781.41	1780.83	1781.11	1780.32	1778.95	1778.63	1776.72	1775.30	1772.69	1771.71	1768.87	1767.74
12	1781.40	1780.76	1781.04	1780.24	1778.89	1778.57	1776.64	1775.27	1772.63	1771.61	1768.83	1767.74
13	1781.38	1780.70	1781.02	1780.26	1778.85	1778.50	1776.56	1775.23	1772.54	1771.55	1768.79	1767.72
14	1781.37	1780.66	1780.99	1780.23	1778.86	1778.47	1776.50	1775.17	1772.47	1771.47	1768.72	1767.67
15	1781.34	1780.65	1780.94	1780.18	1778.80	1778.43	1776.43	1775.08	1772.44	1771.36	1768.68	1768.07
16	1781.37	1780.66	1780.90	1780.17	1778.78	1778.36	1776.39	1774.97	1772.39	1771.31	1768.63	1768.11
17	1781.37	1780.71	1780.84	1780.11	1778.74	1778.31	1776.37	1774.89	1772.42	1771.20	1768.56	1768.09
18	1781.34	1781.02	1780.81	1780.10	1778.66	1778.23	1776.31	1774.82	1772.42	1771.76	1768.72	1768.05
19	1781.32	1781.11	1780.77	1780.03	1778.64	1778.18	1776.19	1774.74	1772.37	1771.55	1768.64	1768.34
20	1781.29	1781.18	1780.71	1779.98	1779.12	1778.13	1776.12	1774.67	1772.30	1771.49	1768.55	1770.34
21	1781.26	1781.23	1780.68	1779.96	1779.12	1778.06	1776.05	1774.57	1772.25	1771.35	1768.44	1770.43
22	1781.31	1781.27	1780.66	1779.89	1779.10	1778.01	1776.01	1774.51	1772.17	1771.27	1768.38	1770.44
23	1781.32	1781.29	1780.61	1779.85	1779.11	1777.94	1775.95	1774.43	1772.10	1771.14	1768.28	1770.52
24	1781.29	1781.27	1780.59	1779.82	1779.07	1777.90	1775.93	1774.32	1772.04	1771.03	1768.37	1770.55
25	1781.31	1781.30	1780.51	1779.78	1779.04	1777.80	1775.83	1774.22	1771.97	1770.92	1768.40	1770.54
26	1781.31	1781.41	1780.49	1779.71	1779.01	1777.73	1775.78	1774.10	1772.31	1770.77	1768.30	1770.52
27	1781.29	1781.40	1780.48	1779.66	1778.97	1777.66	1775.69	1773.99	1772.24	1770.61	1768.22	1770.48
28	1781.27	1781.39	1780.49	1779.59	1779.01	1777.60	1775.63	1773.87	1772.21	1770.50	1768.16	1770.45
29	1781.25	1781.36	1780.47	1779.57	---	1777.54	1775.52	1773.76	1772.16	1770.35	1768.03	1770.40
30	1781.22	1781.47	1780.44	1779.53	---	1777.51	1775.47	1773.64	1772.19	1770.22	1767.93	1770.36
31	1781.20	---	1780.39	1779.45	---	1777.45	---	1773.54	---	1770.14	1767.85	---
MEAN	1781.35	1781.07	1778.87	1780.06	1779.04	1778.30	1776.43	1774.74	1772.57	1771.39	1768.77	1768.72
MAX	1781.49	1781.47	1781.44	1780.39	1779.44	1779.01	1777.39	1775.39	1773.43	1772.12	1770.01	1770.55
MIN	1781.20	1780.65	1781.11	1779.45	1778.64	1777.45	1775.47	1773.54	1771.97	1770.14	1767.85	1767.33

RIO DE LA PLATA BASIN

115

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR

LOCATION.--Lat 18°09'37", long 66°13'44", Hydrologic Unit 21010005, at upstream side of bridge on Highway 173, 0.4 mi (0.6 km) northeast of Proyecto La Plata, and 2.5 mi (4.0 km) upstream from Río Usabón.

DRAINAGE AREA.--63.0 mi² (163.2 km²), excludes 8.2 mi² (21.1 km²) upstream from Carite Reservoir, the flow of which is diverted to Río Guamaní.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1958 (occasional measurements only), February 1959 to March 1960 (monthly measurements only), April 1960 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 850 ft (259 m), from topographic map. Prior to Mar. 29, 1961, wire-weight gage read twice daily at same site and datum.

REMARKS.--Records poor. The Puerto Rico Aqueduct and Sewer Authority operates a pumping plant about 5 mi (8 km) upstream which can divert as much as 23 ft³/s (0.65 m³/s) into Cidra Reservoir. Gage-height and precipitation satellite telemetry at station.

 DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e50	e12	e36	e15	e11	e25	e11	e13	e8.6	e11	e6.4	e11
2	e31	e11	e28	e20	e13	e48	e10	e12	e8.0	e7.6	e6.2	e12
3	e27	e11	e22	e25	e12	e27	e9.6	e12	e7.2	e6.6	e6.0	e15
4	e23	e12	e20	e18	e13	e18	e10	e11	e6.2	e7.4	e5.8	e14
5	e21	e13	e21	e16	e12	e12	e13	e12	e6.4	e9.6	e5.2	e15
6	e20	e11	e22	e14	e12	e11	e17	e11	e6.4	e12	e7.0	e25
7	e22	e11	e19	e13	e11	e9.6	e16	e10	e11	e8.6	e20	e58
8	e21	e12	e18	e12	e10	e8.4	e17	e9.4	e8.8	e7.4	e34	e30
9	e19	e18	e16	e12	e9.8	e8.0	e16	e14	e6.8	e6.6	e8.4	e13
10	e18	e19	e16	e14	e9.8	e8.0	e15	e30	e6.0	e6.2	e10	e10
11	e16	e15	e15	e17	e9.6	e9.2	e26	e45	e6.4	e5.8	e11	e20
12	e14	e14	e14	e19	e9.6	e9.2	e19	e20	e6.2	e5.8	e14	e56
13	e15	e13	e35	e18	e9.4	e9.3	e14	e17	e5.8	e6.4	e11	e24
14	e15	e30	e66	e14	e9.6	e9.8	e11	e15	e6.6	e6.6	e8.4	e10
15	e14	e90	e40	e15	e11	e9.5	e11	e20	e10	e6.4	e7.4	e8.8
16	e21	e200	e23	e14	e12	e10	e9.6	e30	e14	e6.2	e6.4	e180
17	e37	e80	e17	e15	e11	e11	e8.6	e21	e18	e6.2	e7.4	e45
18	e33	e230	e16	e16	e9.4	e11	e7.4	e18	e17	e6.2	e9.8	e28
19	e20	e110	e17	e15	e9.4	e9.0	e9.0	e16	e13	e32	e12	e21
20	e17	e60	e18	e14	e12	e8.4	e8.6	e13	e9.0	e16	e13	e450
21	e15	e72	e15	e15	e52	e8.2	e9.0	e11	e6.8	e11	e21	e140
22	e14	e45	e14	e14	e25	e8.0	e8.8	e9.8	e5.6	e9.6	e8.0	e45
23	e15	e35	e14	e13	e15	e8.2	e9.0	e8.6	e5.2	e8.0	e7.4	e26
24	e17	e28	e14	e12	e14	e8.6	e18	e8.0	e4.8	e7.2	e7.6	e23
25	e16	e24	e13	e11	e18	e8.2	e19	e9.0	e7.0	e7.2	e17	e22
26	e14	e30	e13	e11	e13	e8.4	e28	e10	e23	e6.8	e35	e13
27	e15	e52	e12	e12	e11	e8.8	e60	e9.6	e58	e6.8	e17	e9.8
28	e24	e34	e14	e13	e10	e8.6	e25	e9.0	e30	e7.0	e9.9	e8.6
29	e19	e26	e15	e12	---	e8.8	e19	e8.6	e19	e6.2	e7.4	e9.2
30	e14	e24	e15	e11	---	e9.4	e14	e8.0	e14	e6.4	e7.0	e11
31	e13	---	e14	e11	---	e11	---	e8.8	---	e6.4	e9.0	---
TOTAL	630	1342	632	451	374.6	367.6	468.6	449.8	354.8	263.2	355.7	1353.4
MEAN	20.3	44.7	20.4	14.5	13.4	11.9	15.6	14.5	11.8	8.49	11.5	45.1
MAX	50	230	66	25	52	48	60	45	58	32	35	450
MIN	13	11	12	11	9.4	8.0	7.4	8.0	4.8	5.8	5.2	8.6
AC-FT	1250	2660	1250	895	743	729	929	892	704	522	706	2680
CFSM	.37	.82	.37	.27	.24	.22	.29	.26	.22	.15	.21	.82
IN.	.43	.91	.43	.31	.25	.25	.32	.31	.24	.18	.24	.92

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

	202	177	98.4	64.5	44.8	33.3	49.7	102	92.4	82.8	131	151
MEAN	202	177	98.4	64.5	44.8	33.3	49.7	102	92.4	82.8	131	151
MAX	2164	831	565	519	195	120	323	594	629	489	642	975
(WY)	1971	1978	1971	1992	1989	1972	1971	1985	1970	1961	1961	1960
MIN	7.82	12.1	9.16	7.78	7.65	4.72	6.61	6.66	4.93	5.30	9.45	11.9
(WY)	1969	1982	1990	1990	1990	1977	1977	1968	1977	1977	1967	1967

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR				FOR 1994 WATER YEAR				WATER YEARS 1960 - 1994			
ANNUAL TOTAL	17186.1				7042.7							
ANNUAL MEAN	47.1				19.3							
HIGHEST ANNUAL MEAN									101			
LOWEST ANNUAL MEAN									368			
HIGHEST DAILY MEAN	1200				450				20300			
LOWEST DAILY MEAN	8.2				4.8				2.6			
ANNUAL SEVEN-DAY MINIMUM	8.8				6.1				3.2			
INSTANTANEOUS PEAK FLOW									73600			
INSTANTANEOUS PEAK STAGE									36.39			
ANNUAL RUNOFF (AC-FT)	34090				13970				72930			
ANNUAL RUNOFF (CFSM)	.86				.35				1.84			
ANNUAL RUNOFF (INCHES)	11.67				4.78				24.96			
10 PERCENT EXCEEDS	84				30				153			
50 PERCENT EXCEEDS	24				13				28			
90 PERCENT EXCEEDS	12				7.0				8.8			

e Estimated

RIO DE LA PLATA BASIN

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
12...	0940	14	422	8.0	27.0	2.1	7.2	91	14	2500	K10
DEC 03...	0945	22	390	4.0	25.0	6.2	4.0	49	16	200	K140
FEB 1994											
02...	0850	E11	501	7.0	23.0	1.3	2.8	33	120	290	210
APR 18...	0845	7.4	455	7.7	25.5	1.2	7.4	92	12	K100	K130
JUN 15...	1020	10	441	8.0	26.0	2.0	7.0	88	13	550	3100
AUG 12...	1115	16	423	7.7	28.5	1.4	7.6	100	34	450	530

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
12...	150	37	14	30	1	2.7	160	<0.5	20	29	0.20
DEC 03...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
02...	--	--	--	--	--	--	180	--	--	--	--
APR 18...	150	37	15	37	1	2.9	160	<0.5	22	39	0.20
JUN 15...	--	--	--	--	--	--	140	--	--	--	--
AUG 12...	130	33	12	37	1	3.4	140	--	20	40	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
12...	24	253	9.56	4	0.30	0.450	<1	<100	70	<1	<1
DEC 03...	--	--	--	13	0.20	0.380	--	--	--	--	--
FEB 1994											
02...	--	--	--	5	0.50	0.800	--	--	--	--	--
APR 18...	23	272	5.45	5	--	--	1	<100	80	<1	<1
JUN 15...	--	--	--	12	1.0	0.890	--	--	--	--	--
AUG 12...	21	251	10.7	13	0.50	0.690	--	--	--	--	--

K = non-ideal count

E = estimated

117

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerio, 0.4 mi (0.6 km) southwest of Comerio High School, and 0.2 mi (0.3 km) northeast of Plaza de Comerio.

DRAINAGE AREA.--109 mi² (282 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	149	26	76	29	22	58	19	25	11	12	8.0	12
2	72	25	56	27	25	78	18	22	11	9.5	7.8	13
3	58	25	46	29	24	50	17	20	10	8.6	7.5	16
4	50	25	42	31	25	29	19	20	9.0	7.8	7.4	18
5	46	27	44	35	24	21	29	19	7.7	11	6.5	16
6	44	23	45	32	22	20	33	20	8.3	15	6.2	19
7	49	23	41	29	21	17	29	19	7.6	12	9.0	68
8	47	24	36	27	20	15	31	18	14	9.9	38	52
9	40	39	33	25	20	15	28	16	10	9.0	11	21
10	37	39	34	26	19	15	27	17	8.3	7.7	9.4	11
11	34	31	30	35	19	17	63	59	7.4	7.2	10	15
12	32	31	29	40	19	17	111	39	8.5	6.8	14	66
13	32	28	53	35	18	18	71	26	7.7	6.8	15	34
14	32	34	135	29	19	19	49	20	7.2	8.1	12	15
15	30	88	81	32	22	17	50	19	8.2	8.5	9.9	10
16	50	434	41	29	25	21	46	22	8.8	8.1	8.1	208
17	81	160	34	28	19	21	38	39	17	8.4	7.2	71
18	78	487	32	33	18	18	34	28	23	13	8.2	46
19	42	457	35	31	18	16	31	19	23	38	12	24
20	36	125	36	29	20	15	32	16	15	15	15	554
21	33	157	32	30	103	15	31	14	11	11	21	382
22	31	108	30	28	38	15	36	13	8.3	11	14	77
23	32	79	29	26	25	15	34	11	6.6	9.9	9.0	36
24	36	60	29	24	26	16	34	10	5.9	9.1	8.3	30
25	33	51	28	23	35	15	34	10	5.8	8.6	9.5	31
26	30	51	26	23	22	16	104	11	7.7	8.6	42	18
27	30	114	25	23	20	17	171	13	71	7.9	28	13
28	52	69	27	26	24	17	58	12	30	8.6	15	11
29	42	52	32	25	---	16	39	12	16	8.6	9.8	9.4
30	31	49	31	24	---	17	32	11	12	7.5	8.3	13
31	26	---	30	22	---	20	---	10	---	7.9	7.6	---
TOTAL	1415	2941	1278	885	712	676	1348	610	397.0	321.1	394.7	1909.4
MEAN	45.6	98.0	41.2	28.5	25.4	21.8	44.9	19.7	13.2	10.4	12.7	63.6
MAX	149	487	135	40	103	78	171	59	71	38	42	554
MIN	26	23	25	22	18	15	17	10	5.8	6.8	6.2	9.4
AC-FT	2810	5830	2530	1760	1410	1340	2670	1210	787	637	783	3790
CFSM	.42	.90	.38	.26	.23	.20	.41	.18	.12	.10	.12	.59
IN.	.49	1.01	.44	.30	.24	.23	.46	.21	.14	.11	.14	.65

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

	MEAN	234	97.1	54.8	165	84.6	39.5	56.1	95.0	61.5	85.3	56.7	189
MAX	866	166	112	732	247	75.7	162	263	194	291	114	729	
(WY)	1991	1993	1993	1992	1989	1989	1993	1992	1993	1993	1993	1989	
MIN	40.6	42.6	23.9	22.8	24.4	20.6	22.3	19.7	13.2	10.4	12.7	51.2	
(WY)	1992	1990	1990	1990	1990	1993	1991	1994	1994	1994	1994	1991	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1989 - 1994

ANNUAL TOTAL	42537												
ANNUAL MEAN	117												
HIGHEST ANNUAL MEAN										94.2			
LOWEST ANNUAL MEAN										133			1993
HIGHEST DAILY MEAN	3060	Jul 11								35.3			1994
LOWEST DAILY MEAN	15	Apr 7								14600	Jan 5		1992
ANNUAL SEVEN-DAY MINIMUM	16	Apr 1								5.8	Jun 25		1994
INSTANTANEOUS PEAK FLOW										7.3	Jul 31		1994
INSTANTANEOUS PEAK STAGE										2370	Sep 20		1992
INSTANTANEOUS LOW FLOW										6.73	Sep 20		1992
ANNUAL RUNOFF (AC-FT)	84370									5.6	Jun 24		1994
ANNUAL RUNOFF (CFSM)	1.07									25560			
ANNUAL RUNOFF (INCHES)	14.58									.33			.87
10 PERCENT EXCEEDS	194									4.42			11.80
50 PERCENT EXCEEDS	51									58			130
90 PERCENT EXCEEDS	25									24			34
										8.5			15

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1994.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.--Sediment samples were collected by a local observer on a week basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L Jan. 05, 1992; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.06 ton (0.05 tonne) Aug 20, 1990.

EXTREMES FOR WATER YEARS 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 223 mg/l Nov. 19, 1993; Minimum daily mean, 4 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 798 tons (724 tonnes) Nov. 18, 1993; Minimum daily mean 0.08 tons (0.07 tonnes) Apr. 07, JUL. 12, 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	149	52	26	26	8	.58	76	10	2.1
2	72	20	4.0	25	9	.60	56	9	1.4
3	58	22	3.4	25	9	.60	46	9	1.1
4	50	21	2.8	25	9	.64	42	10	1.1
5	46	16	1.9	27	9	.64	44	10	1.2
6	44	14	1.6	23	9	.58	45	16	1.9
7	49	15	2.0	23	9	.57	41	20	2.2
8	47	16	2.0	24	9	.61	36	20	1.9
9	40	17	1.8	39	9	.89	33	20	1.8
10	37	20	1.9	39	9	.90	34	19	1.7
11	34	35	3.1	31	7	.59	30	16	1.4
12	32	48	4.1	31	7	.56	29	15	1.2
13	32	47	4.0	28	6	.50	53	26	15
14	32	45	3.8	34	8	.71	135	67	36
15	30	30	2.5	88	9	2.3	81	29	9.0
16	50	26	4.9	434	183	289	41	11	1.2
17	81	49	11	160	79	41	34	11	1.0
18	78	40	9.5	487	229	798	32	11	.96
19	42	15	1.8	457	233	430	35	12	1.1
20	36	11	1.1	125	63	22	36	13	1.2
21	33	11	.92	157	78	35	32	13	1.1
22	31	11	.88	108	55	17	30	14	1.1
23	32	10	.85	79	30	6.8	29	15	1.2
24	36	10	.86	60	11	1.8	29	15	1.2
25	33	9	.81	51	10	1.4	28	15	1.1
26	30	10	.79	51	13	1.9	26	15	1.1
27	30	10	.87	114	33	10	25	15	1.0
28	52	19	4.0	69	29	5.6	27	15	1.1
29	42	18	2.2	52	10	1.4	32	15	1.2
30	31	11	.90	49	9	1.1	31	14	1.2
31	26	9	.66	---	---	---	30	13	1.0
TOTAL	1415	---	106.94	2941	---	1673.27	1278	---	96.76

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	29	13	1.0	22	12	.72	58	27	5.2
2	27	14	1.0	25	11	.70	78	42	9.8
3	29	14	1.0	24	10	.64	50	52	7.0
4	31	12	.97	25	7	.51	29	64	5.0
5	35	10	1.0	24	5	.37	21	67	4.0
6	32	8	.68	22	4	.28	20	66	3.5
7	29	7	.60	21	5	.28	17	62	2.8
8	27	8	.60	20	7	.40	15	47	1.9
9	25	8	.56	20	8	.43	15	29	1.2
10	26	8	.55	19	6	.34	15	16	.65
11	35	8	.74	19	5	.28	17	12	.52
12	40	8	.86	19	5	.26	17	14	.64
13	35	7	.62	18	6	.31	18	15	.73
14	29	7	.61	19	7	.40	19	17	.88
15	32	7	.62	22	8	.52	17	19	.89
16	29	8	.70	25	9	.59	21	21	1.2
17	28	10	.73	19	10	.54	21	30	1.7
18	33	9	.77	18	11	.53	18	40	1.9
19	31	7	.61	18	11	.53	16	49	2.0
20	29	6	.47	20	12	.97	15	54	2.2
21	30	4	.36	103	23	8.8	15	57	2.3
22	28	4	.35	38	8	.83	15	60	2.4
23	26	5	.39	25	4	.25	15	62	2.5
24	24	6	.43	26	8	.61	16	63	2.5
25	23	8	.51	35	19	1.8	15	60	2.5
26	23	10	.59	22	14	.85	16	43	1.8
27	23	11	.65	20	12	.69	17	20	.85
28	26	39	2.9	24	14	.90	17	10	.44
29	25	12	.85	---	---	---	16	9	.38
30	24	13	.82	---	---	---	17	9	.41
31	22	13	.76	---	---	---	20	9	.45
TOTAL	885	---	23.30	712	---	24.33	676	---	70.24

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	19	15	.74	25	61	4.3	11	9	.25
2	18	33	1.5	22	45	2.7	11	9	.26
3	17	51	2.3	20	27	1.5	10	10	.26
4	19	42	2.0	20	14	.73	9.0	11	.24
5	29	21	1.7	19	10	.50	7.7	18	.34
6	33	46	4.9	20	10	.53	8.3	61	1.1
7	29	1	.08	19	11	.58	7.6	81	1.6
8	31	2	.16	18	21	.98	14	54	2.0
9	28	8	.61	16	38	1.6	10	36	1.1
10	27	16	1.1	17	56	2.6	8.3	20	.44
11	63	33	7.8	59	74	12	7.4	14	.27
12	111	50	15	39	93	9.8	8.5	13	.25
13	71	49	9.3	26	106	7.4	7.7	11	.22
14	49	55	7.6	20	78	4.3	7.2	8	.16
15	50	56	7.3	19	40	1.9	8.2	6	.12
16	46	45	5.9	22	18	1.0	8.8	5	.12
17	38	29	3.0	39	21	2.3	17	11	.54
18	34	16	1.5	28	17	1.3	23	8	.50
19	31	15	1.2	19	11	.57	23	14	.86
20	32	18	1.6	16	11	.45	15	10	.42
21	31	18	1.5	14	9	.34	11	6	.17
22	36	50	4.6	13	7	.25	8.3	4	.10
23	34	62	5.8	11	6	.19	6.6	6	.11
24	34	62	5.8	10	6	.16	5.9	8	.14
25	34	63	5.7	10	6	.16	5.8	9	.14
26	104	67	32	11	11	.32	7.7	6	.12
27	171	107	54	13	14	.45	71	37	11
28	58	82	13	12	11	.37	30	18	1.5
29	39	76	8.2	12	10	.29	16	11	.47
30	32	71	6.0	11	9	.25	12	8	.29
31	---	---	---	10	9	.24	---	---	---
TOTAL	1348	---	211.89	610	---	60.06	397.0	---	25.09

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	12	10	.31	8.0	10	.22	12	7	.22
2	9.5	10	.25	7.8	11	.21	13	6	.22
3	8.6	10	.22	7.5	12	.22	16	11	.49
4	7.8	11	.23	7.4	11	.21	18	6	.28
5	11	11	.32	6.5	10	.18	16	9	.38
6	15	12	.49	6.2	10	.17	19	12	.65
7	12	12	.39	9.0	10	.26	68	36	7.7
8	9.9	12	.32	38	21	2.5	52	28	4.2
9	9.0	11	.26	11	11	.32	21	16	.92
10	7.7	8	.19	9.4	12	.31	11	12	.36
11	7.2	6	.11	10	14	.38	15	9	.37
12	6.8	4	.08	14	16	.59	66	34	8.2
13	6.8	4	.09	15	15	.64	34	15	1.6
14	8.1	5	.11	12	15	.47	15	9	.36
15	8.5	5	.11	9.9	13	.34	10	9	.25
16	8.1	5	.10	8.1	11	.22	208	93	63
17	8.4	5	.11	7.2	7	.15	71	24	5.5
18	13	7	.25	8.2	10	.23	46	11	1.2
19	38	23	4.3	12	5	.16	24	16	1.0
20	15	8	.35	15	9	.38	554	133	495
21	11	6	.18	21	11	.68	382	166	227
22	11	8	.26	14	9	.34	77	38	8.9
23	9.9	10	.25	9.0	8	.20	36	30	2.7
24	9.1	11	.28	8.3	7	.16	30	25	2.0
25	8.6	11	.27	9.5	6	.15	31	18	1.5
26	8.6	8	.20	42	23	3.2	18	13	.61
27	7.9	6	.13	28	11	.97	13	10	.33
28	8.6	5	.11	15	8	.32	11	9	.26
29	8.6	5	.12	9.8	8	.22	9.4	8	.20
30	7.5	10	.21	8.3	9	.19	13	7	.26
31	7.9	13	.26	7.6	9	.18	---	---	---
TOTAL	321.1	---	10.86	394.7	---	14.77	1909.4	---	835.66
YEAR	12887.2		3153.17						

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
SEP 1994 20...	1925	1880	958	4860	84	82	87

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
SEP 1994 20...	91	92	98.7	99.7	100	100	100

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
07...	1800	55	90	13	73
NOV					
18...	1715	443	244	292	98
19...	0720	509	298	410	99
SEP 1994					
20...	1645	1300	546	1920	46
20...	1703	2300	545	3380	91
20...	1740	493	2340	3110	92
20...	1150	10	299	8.0	91

RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'33", long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerio plaza.

DRAINAGE AREA.--139 mi² (360 km²), excludes 8.2 mi² (21.1 km²) upstream from Carite Reservoir, the flow of which is diverted to Rio Guamaní.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
13...	1200	46	386	8.4	29.0	0.90	7.2	94	<10	310	780
DEC											
01...	1010	112	370	8.0	25.0	8.3	6.6	79	14	3800	K1100
JAN 1994											
31...	0835	35	433	8.1	22.5	1.0	6.4	73	210	260	460
APR											
07...	0800	28	410	7.9	25.0	--	7.2	94	--	K810	200
JUN											
14...	1120	27	395	7.8	28.0	6.3	9.0	105	21	420	K73
AUG											
03...	0850	18	403	8.2	27.0	1.8	7.6	108	12	280	230

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
13...	150	35	15	23	0.8	2.9	150	<0.5	16	23	0.30
DEC											
01...	--	--	--	--	--	--	140	--	--	--	--
JAN 1994											
31...	--	--	--	--	--	--	150	--	--	--	--
APR											
07...	--	--	--	--	--	--	150	<0.5	--	--	--
JUN											
14...	--	--	--	--	--	--	150	--	--	--	--
AUG											
03...	140	31	14	30	1	2.6	140	--	20	31	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
13...	27	232	28.7	4	0.70	0.170	1	100	50	<1	<1
DEC											
01...	--	--	--	18	0.20	0.240	--	--	--	--	--
JAN 1994											
31...	--	--	--	8	0.20	0.290	--	--	--	--	--
APR											
07...	--	--	--	--	0.40	0.220	1	<100	80	<1	1
JUN											
14...	--	--	--	9	0.40	0.240	--	--	--	--	--
AUG											
03...	30	243	11.7	6	0.40	0.380	--	--	--	--	--

K = non-ideal count

50044000 RIO DE LA PLATA NEAR COMERIO, PR--Continue

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR

LOCATION.--Lat 18°18'08", long 66°13'24", Hydrologic Unit 21010005, at left bank downstream side of river, 1.3 mi (2.1 km) East of Plaza de Naranjito, 0.9 mi (1.4 km) west from intersection of roads 167 and 164 at km 8.9 and 2.9 mi (4.7 km) northwest from Represa Comerio.

DRAINAGE AREA.--9.19 mi² (23.80 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	8.8	8.1	6.8	4.6	6.5	2.6	3.1	1.6	1.6	1.4	1.7
2	9.9	6.9	7.8	5.8	4.7	6.5	2.7	2.7	1.6	1.5	1.3	1.4
3	9.4	6.8	7.5	4.5	4.5	5.1	2.5	2.6	1.6	1.4	1.4	1.3
4	9.3	6.8	10	5.4	5.3	5.3	2.6	2.3	1.5	1.3	1.2	1.1
5	7.7	6.3	8.7	5.7	5.5	5.3	28	2.3	1.3	1.2	1.6	1.0
6	7.3	6.4	7.5	5.1	4.8	4.9	7.3	2.3	2.5	3.3	1.3	2.0
7	8.5	6.4	7.2	4.9	4.4	3.9	3.7	2.2	1.5	2.4	6.6	3.9
8	7.8	12	7.2	4.7	4.4	4.0	3.3	2.1	1.4	1.4	4.6	2.1
9	7.0	9.7	6.6	4.7	4.2	4.4	3.0	2.1	1.3	1.3	5.2	1.4
10	6.5	8.4	6.2	4.9	4.5	4.4	5.4	2.2	1.4	1.3	3.5	1.8
11	6.3	6.9	6.3	10	4.2	4.0	8.0	2.2	1.4	1.4	1.9	4.8
12	6.2	6.6	6.1	6.7	4.0	4.4	30	2.0	1.5	1.4	1.5	2.0
13	6.5	29	6.0	5.4	4.0	4.2	5.3	2.1	1.4	1.3	1.5	1.6
14	6.4	36	7.1	5.3	4.4	3.8	8.1	1.9	1.4	1.3	1.6	1.9
15	6.2	47	6.1	4.8	4.6	4.6	10	1.9	1.6	1.4	1.5	1.6
16	56	58	5.7	5.0	4.0	4.4	7.5	1.9	1.8	1.5	1.9	2.0
17	22	48	5.6	5.6	3.9	3.7	16	6.5	1.9	1.3	1.5	1.5
18	9.8	70	13	5.2	3.8	3.5	7.7	2.9	1.9	2.7	6.4	1.5
19	8.5	41	7.7	5.2	4.1	3.5	5.1	2.0	1.6	1.5	3.8	1.5
20	8.1	18	7.7	13	3.6	3.1	4.4	1.9	1.3	1.1	34	3.6
21	7.5	16	5.6	7.0	3.4	3.5	3.9	1.9	1.1	1.3	4.9	4.7
22	8.0	12	5.0	6.7	3.4	3.0	3.5	1.7	1.2	1.0	2.0	2.2
23	7.4	10	4.8	5.6	3.5	2.8	3.3	1.7	1.1	1.1	1.5	13
24	6.7	9.5	4.5	5.2	3.8	2.9	3.1	1.6	1.3	1.0	1.9	4.4
25	6.6	8.9	4.4	4.9	3.6	2.7	3.2	1.7	1.2	1.1	2.1	29
26	6.4	9.1	4.8	4.9	3.5	2.7	3.2	1.6	1.6	.98	1.4	7.0
27	6.4	9.1	8.7	4.7	84	2.7	17	1.5	1.5	1.1	1.4	2.2
28	6.5	13	7.3	5.0	18	2.9	4.7	1.6	1.4	1.5	1.4	1.8
29	6.3	9.3	5.0	5.2	---	4.4	41	1.4	1.2	1.4	1.3	1.7
30	6.1	8.4	4.7	4.6	---	3.0	5.8	1.5	1.6	1.2	1.2	1.5
31	5.9	---	4.4	4.3	---	2.7	---	1.5	---	1.6	1.2	---
TOTAL	294.2	544.3	207.3	176.8	210.7	122.8	251.9	66.9	44.7	44.88	104.0	107.2
MEAN	9.49	18.1	6.69	5.70	7.52	3.96	8.40	2.16	1.49	1.45	3.35	3.57
MAX	56	70	13	13	84	6.5	41	6.5	2.5	3.3	34	29
MIN	5.9	6.3	4.4	4.3	3.4	2.7	2.5	1.4	1.1	.98	1.2	1.0
AC-FT	584	1080	411	351	418	244	500	133	89	89	206	213
CFSM	1.03	1.97	.73	.62	.82	.43	.91	.23	.16	.16	.37	.39
IN.	1.19	2.20	.84	.72	.85	.50	1.02	.27	.18	.18	.42	.43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	MEAN	29.7	14.5	14.9	19.5	13.1	9.06	21.4	31.5	7.90	10.9	6.91	10.1
MAX	98.7	18.4	27.5	42.5	31.7	13.7	52.4	87.2	19.5	23.5	9.53	21.2	
(WY)	1991	1993	1993	1992	1991	1992	1993	1993	1993	1993	1993	1993	
MIN	4.51	7.32	5.67	5.70	6.39	3.96	8.40	2.16	1.49	1.45	3.35	3.57	
(WY)	1992	1992	1992	1994	1992	1994	1994	1994	1994	1994	1994	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	8391.6	2175.68	
ANNUAL MEAN	23.0	5.96	15.7
HIGHEST ANNUAL MEAN			24.5
LOWEST ANNUAL MEAN			5.96
HIGHEST DAILY MEAN	321	May 2	84
LOWEST DAILY MEAN	3.6	Apr 2	.98
ANNUAL SEVEN-DAY MINIMUM	3.8	Apr 1	1.1
INSTANTANEOUS PEAK FLOW			766
INSTANTANEOUS PEAK STAGE			7.05
ANNUAL RUNOFF (AC-FT)	16640	4320	11390
ANNUAL RUNOFF (CFSM)	2.50	.65	1.71
ANNUAL RUNOFF (INCHES)	33.97	8.81	23.24
10 PERCENT EXCEEDS	58	9.3	29
50 PERCENT EXCEEDS	9.1	4.0	6.3
90 PERCENT EXCEEDS	4.8	1.4	2.7

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: August 01, 1990 to September 1994

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.-- Sediment samples collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,300 mg/L Oct. 16, 1990; Minimum daily mean, 1 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 18,000tons (16,300tonnes) Jan. 05, 1992; Minimum daily mean, 0.00 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 460 mg/L Feb. 27, 1994; Minimum daily mean, 1 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 486tons (441 tonnes) Feb. 27, 1994; Minimum daily mean, <0.01 ton (<0.1 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	11	20	.55	8.8	12	.30	8.1	20	.43
2	9.9	18	.48	6.9	8	.14	7.8	19	.40
3	9.4	15	.40	6.8	4	.07	7.5	19	.37
4	9.3	13	.33	6.8	29	.56	10	24	.72
5	7.7	10	.21	6.3	54	.91	8.7	21	.45
6	7.3	11	.24	6.4	55	.92	7.5	20	.39
7	8.5	13	.31	6.4	54	.95	7.2	20	.37
8	7.8	11	.23	12	56	1.9	7.2	18	.35
9	7.0	9	.18	9.7	24	.67	6.6	15	.26
10	6.5	6	.11	8.4	18	.40	6.2	15	.25
11	6.3	4	.06	6.9	16	.30	6.3	15	.25
12	6.2	3	.05	6.6	16	.28	6.1	10	.17
13	6.5	2	.04	29	94	16	6.0	4	.06
14	6.4	2	.04	36	108	13	7.1	13	.28
15	6.2	2	.04	47	142	20	6.1	12	.19
16	56	391	273	58	179	32	5.7	7	.11
17	22	153	11	48	167	39	5.6	5	.08
18	9.8	79	2.2	70	250	70	13	30	1.3
19	8.5	16	.36	41	148	20	7.7	14	.47
20	8.1	4	.08	18	41	2.1	7.7	19	.45
21	7.5	4	.10	16	33	1.4	5.6	12	.19
22	8.0	6	.13	12	30	.97	5.0	8	.12
23	7.4	10	.20	10	28	.74	4.8	3	.04
24	6.7	13	.24	9.5	25	.67	4.5	2	.03
25	6.6	16	.29	8.9	24	.57	4.4	1	.02
26	6.4	18	.32	9.1	23	.55	4.8	1	.01
27	6.4	11	.19	9.1	21	.52	8.7	20	.79
28	6.5	4	.07	13	32	1.9	7.3	13	.28
29	6.3	5	.08	9.3	21	.51	5.0	3	.04
30	6.1	7	.12	8.4	20	.46	4.7	2	<.01
31	5.9	10	.17	---	---	---	4.4	2	.02
TOTAL	294.2	---	291.82	544.3	---	227.79	207.3	---	8.89

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	6.8	13	.30	4.6	10	.12	6.5	54	.95
2	5.8	10	.16	4.7	11	.14	6.5	35	.63
3	4.5	10	.11	4.5	27	.33	5.1	22	.32
4	5.4	13	.20	5.3	28	.40	5.3	14	.19
5	5.7	9	.16	5.5	24	.36	5.3	8	.12
6	5.1	7	.09	4.8	24	.32	4.9	12	.15
7	4.9	7	.10	4.4	25	.31	3.9	16	.17
8	4.7	8	.10	4.4	16	.18	4.0	11	.13
9	4.7	6	.06	4.2	11	.13	4.4	5	.06
10	4.9	4	.05	4.5	8	.09	4.4	3	.04
11	10	24	.85	4.2	8	.10	4.0	1	.02
12	6.7	6	.11	4.0	10	.10	4.4	1	.02
13	5.4	5	.07	4.0	10	.10	4.2	1	.01
14	5.3	7	.09	4.4	12	.14	3.8	1	<.01
15	4.8	7	.09	4.6	5	.07	4.6	1	<.01
16	5.0	7	.09	4.0	5	.05	4.4	1	.02
17	5.6	7	.10	3.9	6	.06	3.7	2	.01
18	5.2	7	.10	3.8	6	.06	3.5	4	.03
19	5.2	8	.12	4.1	5	.05	3.5	7	.06
20	13	40	2.0	3.6	3	.03	3.1	12	.10
21	7.0	16	.31	3.4	3	.03	3.5	15	.14
22	6.7	17	.33	3.4	3	.03	3.0	4	.03
23	5.6	16	.24	3.5	4	.05	2.8	1	<.01
24	5.2	15	.21	3.8	5	.05	2.9	1	<.01
25	4.9	15	.20	3.6	5	.05	2.7	1	<.01
26	4.9	17	.21	3.5	5	.04	2.7	1	<.01
27	4.7	16	.21	84	460	486	2.7	1	<.01
28	5.0	38	.53	18	99	5.6	2.9	1	<.01
29	5.2	41	.58	---	---	---	4.4	15	.27
30	4.6	34	.43	---	---	---	3.0	22	.19
31	4.3	22	.26	---	---	---	2.7	10	.08
TOTAL	176.8	---	8.46	210.7	---	494.99	122.8	---	3.74

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	2.6	5	.03	3.1	12	.11	1.6	80	.35
2	2.7	1	<.01	2.7	7	.06	1.6	59	.26
3	2.5	3	.02	2.6	4	.03	1.6	26	.10
4	2.6	9	.06	2.3	3	.02	1.5	13	.04
5	28	107	31	2.3	8	.05	1.3	9	.03
6	7.3	25	.66	2.3	13	.08	2.5	10	.08
7	3.7	11	.10	2.2	14	.08	1.5	7	.04
8	3.3	7	.07	2.1	11	.06	1.4	7	.03
9	3.0	6	.05	2.1	8	.05	1.3	7	.02
10	5.4	12	.23	2.2	6	.02	1.4	8	.01
11	8.0	21	.59	2.2	3	.01	1.4	9	.04
12	30	92	15	2.0	6	.03	1.5	9	.04
13	5.3	15	.22	2.1	6	.04	1.4	9	.05
14	8.1	21	.58	1.9	5	.02	1.4	11	.04
15	10	24	.74	1.9	4	.01	1.6	32	.15
16	7.5	19	.40	1.9	3	<.01	1.8	45	.22
17	16	43	4.2	6.5	28	.72	1.9	41	.19
18	7.7	18	.41	2.9	34	.29	1.9	30	.15
19	5.1	13	.18	2.0	24	.14	1.6	18	.09
20	4.4	9	.11	1.9	17	.10	1.3	8	.03
21	3.9	6	.07	1.9	12	.08	1.1	12	.05
22	3.5	4	.04	1.7	10	.04	1.2	17	.06
23	3.3	5	.05	1.7	7	.03	1.1	18	.06
24	3.1	7	.06	1.6	5	<.01	1.3	17	.07
25	3.2	14	.12	1.7	5	.03	1.2	16	.06
26	3.2	22	.19	1.6	7	.02	1.6	14	.07
27	17	79	27	1.5	6	.03	1.5	13	.05
28	4.7	13	.17	1.6	5	<.01	1.4	11	.04
29	41	373	325	1.4	3	<.01	1.2	9	.02
30	5.8	20	.33	1.5	2	<.01	1.6	9	.04
31	---	---	---	1.5	30	.13	---	---	---
TOTAL	251.9	---	407.68	66.9	---	2.28	44.7	---	2.48

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	1.6	10	.02	1.4	8	.03	1.7	4	<.01
2	1.5	12	.06	1.3	4	<.01	1.4	4	<.01
3	1.4	12	.04	1.4	4	<.01	1.3	4	<.01
4	1.3	7	.01	1.2	4	<.01	1.1	4	<.01
5	1.2	3	<.01	1.6	4	<.01	1.0	3	<.01
6	3.3	6	.07	1.3	4	<.01	2.0	3	.01
7	2.4	4	.02	6.6	50	2.4	3.9	12	.36
8	1.4	4	<.01	4.6	159	2.1	2.1	35	.22
9	1.3	4	<.01	5.2	119	1.6	1.4	26	.09
10	1.3	4	<.01	3.5	81	.84	1.8	18	.10
11	1.4	5	<.01	1.9	48	.24	4.8	20	.29
12	1.4	4	<.01	1.5	24	.09	2.0	20	.12
13	1.3	4	<.01	1.5	25	.10	1.6	13	.07
14	1.3	19	.07	1.6	26	.12	1.9	14	.08
15	1.4	40	.15	1.5	29	.11	1.6	12	.06
16	1.5	34	.14	1.9	31	.16	2.0	9	.04
17	1.3	17	.05	1.5	31	.11	1.5	6	.02
18	2.7	10	.10	6.4	38	.73	1.5	4	<.01
19	1.5	5	.03	3.8	13	.15	1.5	2	<.01
20	1.1	4	<.01	34	358	96	3.6	9	.13
21	1.3	4	<.01	4.9	29	.43	4.7	14	.21
22	1.0	5	.01	2.0	20	.11	2.2	8	.06
23	1.1	16	.05	1.5	31	.13	13	40	4.5
24	1.0	15	.04	1.9	23	.13	4.4	13	.19
25	1.1	9	.03	2.1	15	.08	29	163	35
26	.98	6	<.01	1.4	16	.07	7.0	187	4.0
27	1.1	25	.08	1.4	22	.09	2.2	89	.60
28	1.5	53	.21	1.4	37	.14	1.8	17	.07
29	1.4	53	.21	1.3	59	.21	1.7	5	.02
30	1.2	45	.15	1.2	38	.14	1.5	5	.01
31	1.6	23	.11	1.2	9	.03	---	---	---
TOTAL	44.88	---	1.65	104.0	---	106.34	107.2	---	46.25
YEAR	2175.68		1602.37						

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
16...	2005	247	2830	1890	97
JAN 1994					
26...	1555	4.9	219	2.9	98
APR					
29...	1430	335	5470	4950	94
AUG					
10...	1412	79	3.4	0.7	96
18...	1656	60	20	3.2	96
SEP					
26...	1401	5.1	175	2.4	99

RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'39", long 66°13'28", at steel-cross-bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito plaza.

DRAINAGE AREA.--4.0 mi² (10.3 km²).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCHI FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)
OCT 1993											
13...	0925	9.0	252	8.2	26.5	3.0	8.7	108	<10	K7000	71
DEC 01...	0805	6.2	338	7.2	26.0	2.0	7.4	90	<10	230	--
JAN 1994											
31...	1025	6.1	355	8.1	22.0	2.5	4.8	54	<10	420	--
APR 07...	1010	5.1	340	7.9	25.0	1.4	7.8	94	<10	K1400	100
JUN 14...	1300	1.5	377	7.6	28.5	0.90	8.2	105	<10	K1000	--
AUG 03...	1110	1.1	405	8.1	30.0	0.30	8.2	108	<10	2100	150

DATE	HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
13...	25	29	14	15	0.6	2.4	120	<0.5	14	20	0.20
DEC 01...	--	--	--	--	--	--	110	--	--	--	--
JAN 1994											
31...	--	--	--	--	--	--	130	--	--	--	--
APR 07...	10	22	12	13	0.6	2.3	82	<0.5	17	15	0.20
JUN 14...	--	--	--	--	--	--	130	--	--	--	--
AUG 03...	13	35	15	28	1	2.8	120	--	20	36	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
13...	28	199	4.83	14	0.40	0.160	1	100	20	<1	<1
DEC 01...	--	--	--	9	<0.20	0.140	--	--	--	--	--
JAN 1994				21	0.30	0.270	--	--	--	--	--
31...	--	--	--								
APR 07...	25	163	2.24	10	0.40	0.240	1	<100	40	<1	<1
JUN 14...	--	--	--	1	0.30	0.340	--	--	--	--	--
AUG 03...	28	237	0.68	11	0.30	0.450	--	--	--	--	--

K = non-ideal count

50044850 RIO GUADIANA NEAR NARANJITO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE LA PLATA BASIN

50045000 LAGO LA PLATA AT DAMSITE, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) West of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Corozal.

DRAINAGE AREA.--181 mi² (469 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--February 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 ac-ft (45.6 hm³) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Río de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with 6 bascule gates. The spillway crest has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 167.02 ft (50.91 m), Jan. 5, 1992; minimum elevation, 108.52 ft (33.07 m), Sept. 12, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 165.17 ft (50.34 m), Oct. 1; minimum elevation, 108.52 ft (33.07 m), Sept. 12.

Capacity Table
(based on data from Puerto Rico Aqueduct and Sewer Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
98.43	2,760	164.05	28,550
131.24	11,360	170.61	33,160
154.60	22,720	175.52	37,040

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	165.17	163.86	164.25	161.43	157.87	154.90	149.02	145.62	137.30	128.89	118.66	A
2	165.07	163.57	164.28	161.39	157.72	155.01	148.80	145.36	137.04	128.55	118.28	110.50
3	164.91	163.47	164.27	161.29	157.58	155.04	148.54	145.09	136.78	128.30	117.93	110.13
4	164.99	163.37	164.27	161.08	157.45	154.94	148.23	144.83	136.47	127.95	117.60	109.75
5	164.80	163.14	164.26	161.02	157.33	154.80	148.19	144.54	136.21	127.63	117.23	109.36
6	164.85	163.03	164.26	160.97	157.17	154.64	148.09	144.25	135.93	127.31	116.83	109.08
7	164.90	162.93	164.10	160.89	157.03	154.45	147.90	144.01	135.70	127.04	116.56	109.10
8	164.87	162.92	164.05	160.79	156.94	154.26	147.67	143.72	135.35	126.63	116.23	109.05
9	164.85	162.91	163.90	160.70	156.74	154.07	147.39	143.42	135.08	126.32	116.03	108.99
10	164.90	162.82	163.76	160.60	156.55	153.89	147.21	143.09	134.83	125.88	115.76	108.73
11	164.84	162.76	163.65	160.63	156.36	153.69	147.09	142.82	134.45	125.53	115.41	108.78
12	164.78	162.58	163.57	160.45	156.15	153.49	147.30	142.66	134.19	125.08	115.06	108.69
13	164.73	162.67	163.49	160.37	155.98	153.31	147.22	142.41	133.93	124.69	114.74	109.07
14	164.68	162.99	163.59	160.18	155.80	153.11	147.14	142.11	133.56	124.20	114.44	109.08
15	164.54	163.48	163.61	160.10	155.67	152.92	147.05	141.81	133.32	123.81	114.08	109.05
16	164.82	164.41	163.49	160.03	155.48	152.73	146.90	141.51	133.03	123.33	113.72	108.97
17	164.75	164.30	163.27	159.96	155.30	152.60	146.77	141.27	132.73	122.94	113.27	109.49
18	164.69	164.62	163.27	159.89	155.11	152.38	146.57	141.22	132.56	122.72	A	109.52
19	164.72	164.28	163.17	159.82	154.88	152.14	146.30	140.87	132.38	122.41	112.89	109.40
20	164.69	164.11	163.07	159.80	154.90	151.93	146.08	140.58	132.06	122.26	A	110.82
21	164.63	164.25	162.90	159.72	154.96	151.69	145.79	140.27	131.76	121.99	113.12	114.82
22	164.58	164.25	162.57	159.62	154.88	151.44	145.53	139.96	131.46	121.69	112.97	115.80
23	164.51	164.40	162.32	159.51	154.73	151.21	145.23	139.68	130.67	121.39	112.71	116.40
24	164.48	164.40	162.20	159.09	154.55	150.99	144.93	139.33	130.74	121.10	112.53	116.41
25	164.42	164.43	162.07	158.98	154.43	150.73	144.65	139.06	130.42	120.77	112.39	116.83
26	164.35	164.21	161.94	158.64	154.29	150.51	144.36	138.72	130.08	120.48	112.08	116.79
27	164.18	164.40	161.85	158.49	154.89	150.24	145.09	138.53	129.83	120.17	111.87	116.70
28	164.12	164.56	161.82	158.37	154.92	150.00	145.09	138.28	129.72	119.90	111.75	116.58
29	164.12	164.26	161.62	158.26	---	149.82	146.03	138.11	129.50	119.59	111.60	116.52
30	164.04	164.30	161.57	158.17	---	149.55	145.87	137.84	129.16	119.26	111.32	116.40
31	163.96	---	161.48	158.03	---	149.28	---	137.61	---	118.99	110.99	---
MEAN	164.64	163.72	163.16	159.94	155.92	152.57	146.73	141.57	133.21	123.77	---	---
MAX	165.17	164.62	164.28	161.43	157.87	155.04	149.02	145.62	137.30	128.89	---	---
MIN	163.96	162.58	161.48	158.03	154.29	149.28	144.36	137.61	129.16	118.99	---	---

A No gage-height record

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 mi² (448 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (30 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	3.1	47	3.7	5.6	6.2	.00	.00	.00	.00	.01	.77
2	162	64	4.2	3.5	5.5	5.7	.00	.00	.00	.00	.00	.21
3	125	5.5	4.1	3.2	5.6	5.5	.00	.00	.00	.05	.00	.00
4	2.5	4.7	3.5	50	5.6	5.3	.00	.00	.00	.06	.01	.00
5	68	53	3.3	4.3	5.8	3.4	.00	.00	.00	.02	.01	.00
6	3.0	6.1	3.0	3.7	5.9	1.2	.00	.00	.00	.23	.01	.00
7	2.3	4.8	38	3.5	6.0	.48	.00	.00	.00	.12	4.9	.00
8	22	4.6	4.0	3.3	6.2	.27	.00	.00	.00	.05	.59	.00
9	2.9	4.0	37	3.2	38	.13	.00	.00	.00	.03	1.1	.00
10	2.6	36	44	3.0	17	.12	.00	.00	.00	.03	.26	.00
11	2.5	6.9	4.1	2.9	14	.09	.00	.00	.00	.01	.01	.00
12	2.3	47	3.6	96	13	.08	.00	.00	.00	.01	.00	.00
13	2.2	9.4	2.4	5.9	11	.05	.00	.00	.00	.01	.00	1.5
14	2.0	8.7	91	45	9.6	.03	.00	.00	.00	.00	.00	.10
15	28	7.8	2.2	5.4	9.1	.03	.00	.00	.00	.00	.00	.00
16	44	340	2.2	4.8	8.6	.01	.00	.00	.00	.00	.00	.00
17	198	473	39	4.4	8.1	.01	.00	.00	.00	.00	.00	.00
18	98	531	2.4	4.2	6.7	.00	.06	.00	.00	.23	2.5	.00
19	5.0	869	2.4	3.9	5.9	.00	.00	.00	.00	.12	.48	.01
20	20	317	2.2	4.7	4.8	.00	.00	.00	.00	.05	1.4	.02
21	15	248	29	4.4	4.6	.00	.00	.00	.00	.03	.34	.03
22	4.1	171	84	4.1	4.7	.00	.00	.00	.00	.02	.01	.02
23	3.7	2.2	44	3.9	3.7	.00	.00	.00	.00	.02	.00	.01
24	3.5	26	2.4	110	1.2	.00	.00	.00	.00	.01	.05	.94
25	3.8	3.3	2.4	6.4	.58	.00	.00	.00	.00	.01	.06	11
26	3.5	130	2.4	78	.34	.00	.00	.00	.00	.01	.00	3.5
27	48	3.6	2.0	8.3	.85	.00	.00	.00	.00	.00	.00	.69
28	4.6	3.1	2.3	7.3	6.4	.00	.00	.00	.01	.00	.00	.11
29	4.1	142	56	6.9	---	.00	3.8	.00	.03	.01	.00	.03
30	3.5	4.2	4.6	6.6	---	.00	.10	.00	.01	.00	.00	.01
31	3.3	---	4.0	6.0	---	.00	---	.00	---	.01	.00	---
TOTAL	975.4	3529.0	572.7	500.5	214.37	28.60	3.96	0.00	0.05	1.14	11.74	18.95
MEAN	31.5	118	18.5	16.1	7.66	.92	.13	.000	.002	.037	.38	.63
MAX	198	869	91	110	38	6.2	3.8	.00	.03	.23	4.9	11
MIN	2.0	2.2	2.0	2.9	.34	.00	.00	.00	.00	.00	.00	.00
AC-FT	1930	7000	1140	993	425	57	7.9	.00	.1	2.3	23	38
CFSM	.18	.68	.11	.09	.04	.01	.00	.00	.00	.00	.00	.00
IN.	.21	.76	.12	.11	.05	.01	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

MEAN	281	97.0	52.9	357	52.9	27.4	55.2	196	62.0	89.9	23.0	204
MAX	1107	225	161	1581	222	83.2	231	494	220	384	104	1047
(WY)	1991	1993	1993	1992	1991	1990	1993	1993	1993	1993	1993	1989
MIN	.048	.16	.14	.19	.27	.10	.13	.000	.002	.037	.020	.001
(WY)	1992	1992	1990	1990	1990	1992	1994	1994	1994	1994	1989	1991

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1989 - 1994

ANNUAL TOTAL	57451.24	5856.41	
ANNUAL MEAN	157	16.0	112
HIGHEST ANNUAL MEAN			182
LOWEST ANNUAL MEAN			16.0
HIGHEST DAILY MEAN	3680	869	27400
LOWEST DAILY MEAN	.91	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.95	.00	.00
INSTANTANEOUS PEAK FLOW		2190	127000
INSTANTANEOUS PEAK STAGE		11.83	34.76
ANNUAL RUNOFF (AC-FT)	114000	11620	81300
ANNUAL RUNOFF (CFSM)	.91	.093	.65
ANNUAL RUNOFF (INCHES)	12.37	1.26	8.82
10 PERCENT EXCEEDS	429	32	202
50 PERCENT EXCEEDS	53	.10	1.9
90 PERCENT EXCEEDS	2.2	.00	.00

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA AT BELOW LA PLATA DAM, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1994

INSTRUMENTATION.-- Automatic sediment sampler and DH-48.

REMARKS.-- Sediment samples were collected by field technician on regular visits.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,180 mg/L Jan. 06, 1992; Minimum daily mean, 0 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 362,000tons (328,000tonnes) Jan. 06, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days.

EXTREMES FOR WATER YEARS 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 25 mg/L Nov. 10, 1993; Minimum daily mean, 0 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 60tons (54 tonnes) Nov. 19, 1993; Minimum daily mean, 0.00 ton (0.00 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	86	6	2.4	3.1	2	.02	47	3	3.2
2	162	10	4.5	64	4	3.4	4.2	2	.02
3	125	8	3.0	5.5	2	.03	4.1	2	.02
4	2.5	2	.02	4.7	2	.02	3.5	2	.02
5	68	21	26	53	4	2.7	3.3	2	.02
6	3.0	18	.14	6.1	3	.05	3.0	2	.02
7	2.3	19	.12	4.8	2	.03	38	3	1.6
8	22	14	4.3	4.6	2	.02	4.0	2	.02
9	2.9	2	.02	4.0	2	.02	37	3	1.4
10	2.6	2	.02	36	25	7.9	44	5	4.1
11	2.5	2	.02	6.9	9	.17	4.1	2	.03
12	2.3	2	.02	47	9	7.2	3.6	2	.02
13	2.2	2	.02	9.4	3	.07	2.4	2	.02
14	2.0	2	.01	8.7	3	.06	91	17	39
15	28	3	.96	7.8	3	.06	2.2	2	.02
16	44	4	1.2	340	10	11	2.2	2	.02
17	198	10	5.8	473	14	19	39	3	1.4
18	98	7	3.4	531	15	26	2.4	2	.02
19	5.0	4	.05	869	20	60	2.4	2	.02
20	20	9	1.7	317	12	10	2.2	2	.02
21	15	9	1.7	248	12	9.1	29	3	.86
22	4.1	4	.04	171	9	5.5	84	4	4.6
23	3.7	2	.02	2.2	11	.08	44	3	2.0
24	3.5	2	.02	26	3	.86	2.4	2	.02
25	3.8	2	.02	3.3	2	.02	2.4	2	.02
26	3.5	2	.02	130	6	4.5	2.4	2	.02
27	48	4	2.1	3.6	2	.02	2.0	2	.01
28	4.6	2	.03	3.1	2	.02	2.3	2	.02
29	4.1	2	.02	142	25	54	56	3	2.3
30	3.5	2	.02	4.2	2	.02	4.6	2	.03
31	3.3	2	.02	---	---	---	4.0	2	.02
TOTAL	975.4	---	57.71	3529.0	---	221.87	572.7	---	60.88

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	3.7	2	.02	5.6	2	.04	6.2	3	.05
2	3.5	2	.02	5.5	2	.04	5.7	3	.04
3	3.2	2	.02	5.6	2	.04	5.5	3	.04
4	50	3	2.6	5.6	2	.04	5.3	3	.04
5	4.3	2	.02	5.8	2	.04	3.4	3	.03
6	3.7	2	.02	5.9	2	.04	1.2	3	<.01
7	3.5	2	.02	6.0	2	.04	.48	3	<.01
8	3.3	2	.02	6.2	3	.04	.27	3	<.01
9	3.2	2	.02	38	4	1.1	.13	3	<.01
10	3.0	2	.02	17	4	.18	.12	3	<.01
11	2.9	2	.02	14	4	.13	.09	2	<.01
12	96	4	5.5	13	3	.11	.08	2	<.01
13	5.9	2	.04	11	3	.09	.05	2	<.01
14	45	4	2.2	9.6	3	.07	.03	1	<.01
15	5.4	2	.04	9.1	3	.07	.03	1	<.01
16	4.8	2	.03	8.6	3	.07	.01	1	<.01
17	4.4	2	.02	8.1	3	.06	.01	0	.00
18	4.2	2	.02	6.7	3	.05	.00	0	.00
19	3.9	2	.02	5.9	3	.04	.00	0	.00
20	4.7	2	.03	4.8	3	.04	.00	0	.00
21	4.4	2	.02	4.6	3	.04	.00	0	.00
22	4.1	2	.02	4.7	3	.04	.00	0	.00
23	3.9	2	.02	3.7	2	.03	.00	0	.00
24	110	7	5.7	1.2	1	.00	.00	0	.00
25	6.4	3	.05	.58	1	.00	.00	0	.00
26	78	4	4.7	.34	1	.00	.00	0	.00
27	8.3	3	.06	.85	2	.00	.00	0	.00
28	7.3	3	.06	6.4	3	.04	.00	0	.00
29	6.9	3	.05	---	---	---	.00	0	.00
30	6.6	3	.04	---	---	---	.00	0	.00
31	6.0	2	.04	---	---	---	.00	0	.00
TOTAL	500.5	---	21.46	214.37	---	2.48	28.60	---	0.20

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.06	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.01	0	.00
29	3.8	1	.04	.00	0	.00	.03	0	.00
30	.10	0	.00	.00	0	.00	.01	0	.00
31	---	---	---	.00	0	.00	---	---	---
TOTAL	3.96	---	0.04	0.00	---	0.00	0.05	---	0.00

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.00	0	.00	.01	0	.00	.77	1	.01
2	.00	0	.00	.00	0	.00	.21	0	.00
3	.05	0	.00	.00	0	.00	.00	0	.00
4	.06	0	.00	.01	0	.00	.00	0	.00
5	.02	0	.00	.01	0	.00	.00	0	.00
6	.23	0	.00	.01	0	.00	.00	0	.00
7	.12	0	.00	4.9	1	.05	.00	0	.00
8	.05	0	.00	.59	1	.01	.00	0	.00
9	.03	0	.00	1.1	0	<.01	.00	0	.00
10	.03	0	.00	.26	0	.00	.00	0	.00
11	.01	0	.00	.01	0	.00	.00	0	.00
12	.01	0	.00	.00	0	.00	.00	0	.00
13	.01	0	.00	.00	0	.00	1.5	1	.02
14	.00	0	.00	.00	0	.00	.10	1	.01
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.23	0	.00	2.5	1	.02	.00	0	.00
19	.12	0	.00	.48	1	.01	.01	0	.00
20	.05	0	.00	1.4	1	.01	.02	0	.00
21	.03	0	.00	.34	0	.00	.03	0	.00
22	.02	0	.00	.01	0	.00	.02	0	.00
23	.02	0	.00	.00	0	.00	.01	0	.00
24	.01	0	.00	.05	0	.00	.94	1	.00
25	.01	0	.00	.06	0	.00	11	3	.12
26	.01	0	.00	.00	0	.00	3.5	2	.03
27	.00	0	.00	.00	0	.00	.69	1	.00
28	.00	0	.00	.00	0	.00	.11	0	.00
29	.01	0	.00	.00	0	.00	.03	0	.00
30	.00	0	.00	.00	0	.00	.01	0	.00
31	.01	0	.00	.00	0	.00	---	---	---
TOTAL	1.14	---	0.00	11.74	---	0.10	18.95	---	0.19
YEAR	5856.41		364.93						

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993 08...	1005	91	81	20	64

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR

LOCATION.--Lat 18°24'41", long 66°15'39", Hydrologic Unit 21010005, on left bank, at downstream side of bridge on Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), excludes 8.2 mi² (21.2 km²) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi² (518 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1959 (measurement only), January 1960 to current year. Prior to October 1984, published as Río de la Plata at Toa Alta, PR; October 1984 to September 1988 published as 50046900.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 9.15 ft (2.789 m), above mean sea level. Prior to October, 1984, at site about 1.0 mi (1.6 km) upstream at mean sea level datum.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station. Flow affected by bridge construction about 1.0 mi (1.6 km) upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges and elevations of major floods, as pointed out by local residents are as follows: Sept. 13, 1928, 120,000 ft³/s (3,400 m³/s), gage height, 37.4 ft (11.40 m); June 16, 1943, 82,000 ft³/s (2,322 m³/s), gage height, 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	32	41	57	18	12	13	21	14	17	15	37
2	88	54	35	e60	17	18	14	14	12	28	18	44
3	90	43	25	e45	18	16	16	13	16	22	9.6	25
4	106	25	25	e53	19	14	17	13	12	16	7.7	16
5	83	41	29	e38	18	13	18	12	11	11	11	14
6	39	39	23	24	19	13	30	13	11	22	14	18
7	32	24	34	24	16	13	14	12	11	16	10	21
8	39	26	32	24	16	13	13	16	9.7	16	16	21
9	31	38	27	28	21	15	14	13	9.2	10	54	17
10	24	41	38	28	21	14	34	16	9.0	10	41	16
11	23	37	31	66	16	15	31	16	8.8	11	27	20
12	22	42	22	57	17	14	25	20	9.9	11	22	19
13	21	49	26	44	17	13	13	20	10	11	18	21
14	20	76	47	32	16	14	11	16	10	10	18	69
15	32	136	50	40	17	14	12	15	11	11	20	28
16	44	272	37	28	17	14	14	16	11	12	18	22
17	105	408	48	31	13	13	12	18	12	13	19	15
18	94	261	76	27	13	15	15	21	12	11	26	13
19	43	778	45	27	e13	14	13	22	9.4	12	41	13
20	35	236	39	37	e14	13	12	16	9.6	11	28	14
21	40	123	45	36	e12	15	10	14	9.9	9.3	32	16
22	37	137	73	30	12	13	12	14	10	9.0	36	18
23	28	51	58	27	15	16	12	12	12	9.6	35	16
24	29	34	34	55	18	14	11	12	12	11	50	33
25	27	37	32	55	16	14	13	12	10	11	36	165
26	28	55	32	46	13	14	13	13	12	12	19	134
27	41	52	36	46	13	13	26	12	15	11	17	38
28	43	28	32	26	18	15	17	12	17	11	17	20
29	29	72	55	21	---	15	160	13	23	12	22	16
30	27	59	31	18	---	19	89	13	14	16	15	14
31	27	---	34	18	---	16	---	13	---	17	13	---
TOTAL	1367	3306	1192	1148	453	444	704	463	353.5	409.9	725.3	933
MEAN	44.1	110	38.5	37.0	16.2	14.3	23.5	14.9	11.8	13.2	23.4	31.1
MAX	106	778	76	66	21	19	160	22	23	28	54	165
MIN	20	24	22	18	12	12	10	12	8.8	9.0	7.7	13
AC-FT	2710	6560	2360	2280	899	881	1400	918	701	813	1440	1850
CFSM	.22	.55	.19	.19	.08	.07	.12	.07	.06	.07	.12	.16
IN.	.25	.62	.22	.21	.08	.08	.13	.09	.07	.08	.14	.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

	MEAN	488	444	335	188	130	104	195	365	168	151	255	315
MAX	4813	2015	1352	929	409	468	722	1939	847	690	1677	1691	
(WY)	1971	1985	1971	1992	1989	1969	1987	1985	1970	1961	1979	1960	
MIN	35.1	31.0	23.4	16.9	16.0	8.31	5.07	7.63	11.4	13.2	16.5	19.2	
(WY)	1974	1981	1992	1984	1983	1986	1984	1984	1977	1994	1976	1991	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1960 - 1994

ANNUAL TOTAL	65097	11498.7	
ANNUAL MEAN	178	31.5	259
HIGHEST ANNUAL MEAN			824
LOWEST ANNUAL MEAN			31.5
HIGHEST DAILY MEAN	3830	778	40000
LOWEST DAILY MEAN	15	7.7	2.7
ANNUAL SEVEN-DAY MINIMUM	16	9.5	2.9
INSTANTANEOUS PEAK FLOW		1400	118000
INSTANTANEOUS PEAK STAGE		7.40	26.39
INSTANTANEOUS LOW FLOW			2.2
ANNUAL RUNOFF (AC-FT)	129100	22810	188000
ANNUAL RUNOFF (CFSM)	.89	.16	1.30
ANNUAL RUNOFF (INCHES)	12.12	2.14	17.65
10 PERCENT EXCEEDS	393	52	498
50 PERCENT EXCEEDS	64	18	90
90 PERCENT EXCEEDS	24	11	18

e Estimated

RIO DE LA PLATA BASIN

143

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'41", long 66°15'39", at Highway 2, 1.3 mi (2.1 km) downstream from Rio Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), exclude 8.2 mi² (21.2 km²) upstream from Lago Carite, flow from which is diverted to Rio Guamaní.

PERIOD OF RECORD.--Water years 1958 to current year

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 1993											
15...	1015	7.3	465	7.4	28.5	1.0	4.4	520	490	200	62
DEC 13...	1115	26	441	7.5	26.0	0.70	4.0	210	3300	170	50
FEB 1994											
08...	1115	18.1	470	7.4	25.0	--	6.4	2100	K20	--	--
APR 26...	1115	12	485	7.4	26.5	0.90	4.2	200	K60	200	58
JUN 16...	1200	12	539	7.2	26.0	0.50	1.4	K64	K110	230	66
AUG 10...	1200	40	363	7.2	26.0	1.0	0.8	K3900	410	150	45

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1993											
15...	12	22	0.7	2.9	200	14	26	0.20	20	276	284
DEC 13...	12	21	0.7	2.0	180	14	27	0.10	24	263	255
FEB 1994											
08...	--	--	--	--	190	--	--	--	--	--	--
APR 26...	14	29	0.9	2.3	180	16	36	0.10	18	290	283
JUN 16...	16	28	0.8	2.0	220	14	39	0.20	21	337	319
AUG 10...	8.0	18	0.6	4.9	130	17	24	0.20	12	223	209

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	PHOS-PHORUS DIS-SOLVED (MG/L AS P)	PHOS-PHORUS ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)
OCT 1993											
15...	5.59	0.750	0.230	0.30	0.60	0.130	0.120	0.100	0.31	20	58
DEC 13...	17.9	0.500	0.010	0.01	0.30	0.200	0.180	0.200	0.61	--	--
FEB 1994											
08...	--	--	--	--	--	--	--	--	--	--	--
APR 26...	9.40	0.340	0.040	0.05	0.30	0.150	0.170	0.150	0.46	--	--
JUN 16...	10.9	<0.050	0.080	0.10	0.40	0.110	0.100	0.100	0.31	10	93
AUG 10...	24.0	0.220	0.180	0.23	0.50	0.120	0.070	0.060	0.18	20	70

K = non-ideal count

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MOLYB- DENOM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1993 15...	<3	6	<4	73	<10	1	<1	<1.0	270	8
DEC 13...	--	--	--	--	--	--	--	--	--	--
FEB 1994 08...	--	--	--	--	--	--	--	--	--	--
APR 26...	--	--	--	--	--	--	--	--	--	--
JUN 16...	<3	14	6	52	<10	1	<1	<1.0	300	<6
AUG 10...	<3	33	<4	38	<10	1	<1	<1.0	160	<6

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 16...	1200	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994 16...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994 16...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993 15...	1015	7.3	25	0.49	96
DEC 13...	1115	26	25	1.76	86
FEB 1994 08...	1115	18	59	2.87	71
APR 26...	1115	12	52	3.37	78
JUN 16...	1200	12	52	3.37	--
AUG 10...	1200	40	29	3.13	91

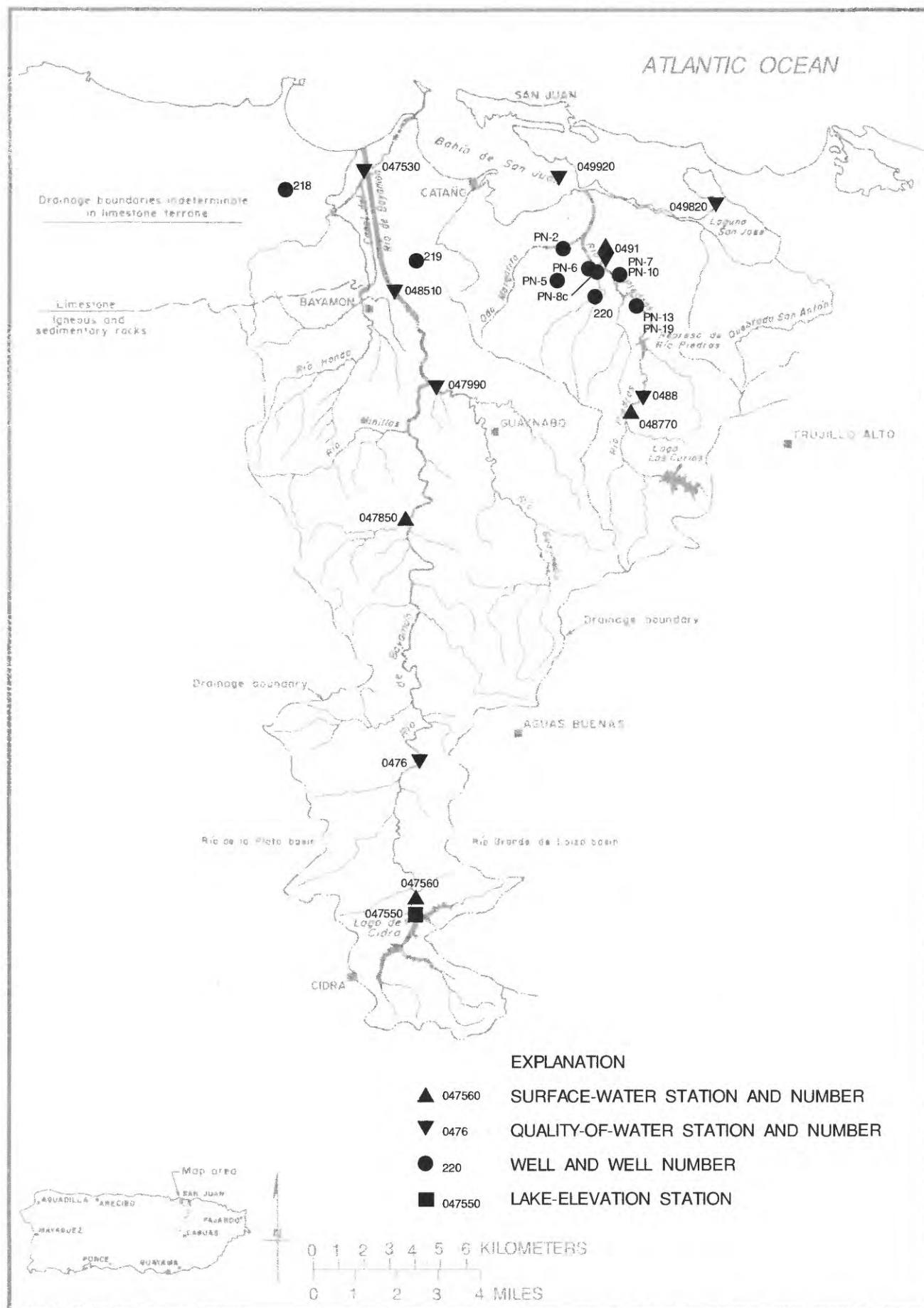


Figure 19.--Río Hondo to Río Puerto Nuevo basins.

RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", long 66°09'36", at Río Hondo Channel, 800 ft (245 m) below junction with Río Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECA, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECA, (COLS. PER 100 ML)
NOV 1993											
01...	0945	--	21600	8.1	30.0	4.2	2.2	29	310	K9600	K100
DEC 20...	0935	--	19600	7.4	26.0	8.0	1.0	12	430	2700	K1100
MAR 1994											
08...	0800	--	31500	8.1	25.0	1.0	5.4	64	460	200	100
MAY 06...	0835	--	36000	7.9	30.0	5.7	3.0	39	780	3000	1100
JUN 30...	1020	--	24000	7.9	30.0	5.6	2.0	26	380	240000	2000
AUG 31...	0845	--	31500	8.6	30.0	0.50	3.1	41	550	K100	K100

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
NOV 1993											
01...	2900	200	580	4900	40	180	140	<0.5	1200	8000	1.8
DEC 20...	--	--	--	--	--	--	120	--	--	--	--
MAR 1994											
08...	--	--	--	--	--	--	160	--	--	--	--
MAY 06...	4100	280	830	6800	46	190	160	1.4	1600	12000	0.50
JUN 30...	--	--	--	--	--	--	140	--	--	--	--
AUG 31...	3900	270	790	6700	47	210	140	--	1700	13000	0.50

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS Ba)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM, TOTAL RECOVERABLE (UG/L AS Cd)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS Cr)	COPPER, TOTAL RECOVERABLE (UG/L AS Cu)
NOV 1993											
01...	6.5	15200	15	--	--	1	100	2100	<2	<1	40
DEC 20...	--	--	62	0.80	0.130	--	--	--	--	--	--
MAR 1994											
08...	--	--	31	0.50	0.100	--	--	--	--	--	--
MAY 06...	3.8	21800	54	0.80	0.120	2	<100	100	<1	<1	<10
JUN 30...	--	--	37	2.3	0.330	--	--	--	--	--	--
AUG 31...	1.5	22800	50	0.90	0.100	--	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE BAYAMON BASIN

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA.--8.26 mi² (21.39 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 ac-ft (6.53 km³) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated ogee crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,324.14 ft (403.60 m), July 11, 1993; minimum elevation 1,297.45 ft (395.46 m), July 28, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,322.57 ft (403.12 m), Nov. 20; minimum elevation, 1,297.45 ft (395.46 m), July 28.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1,295	860	1,312	3,100
1,305	1,970	1,319	4,400
1,309	2,610	1,322	5,200
		1,328	6,920

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1321.77	1320.44	A	1321.10	1317.94	1316.08	1311.54	1307.08	1302.06	1299.06	1297.98	1298.75
2	1321.75	1320.40	A	1320.99	1317.85	A	1311.40	1306.88	1301.85	1298.99	1298.09	1298.70
3	1321.76	1320.36	A	1320.91	1317.75	1315.90	1311.28	1306.68	1301.52	1298.96	1298.16	1298.62
4	1321.74	1320.34	A	1320.86	1317.65	1315.74	1311.13	1306.46	1301.28	A	1298.21	1298.54
5	1321.70	1320.30	A	1320.83	1317.55	1315.58	1311.02	1306.26	1301.02	A	1298.26	1298.45
6	1321.70	1320.26	A	1320.76	1317.44	1315.38	1310.86	1306.04	1300.90	A	1298.35	1298.55
7	1321.68	1320.22	A	1320.72	1317.33	1315.20	1310.74	1305.80	1300.80	A	1298.41	1298.67
8	1321.62	1320.32	A	1320.66	1317.23	1315.00	1310.60	1305.58	1300.70	A	1298.49	1298.76
9	1321.58	1320.32	A	1320.60	1317.12	1314.78	1310.38	1305.36	1300.60	A	1298.56	1298.85
10	1321.54	1320.27	1322.19	1320.54	1317.02	1314.58	1310.26	1305.18	1300.50	A	1298.63	1298.93
11	1321.43	1320.27	1322.18	1320.64	1316.90	1314.39	1310.20	1305.00	1300.40	A	1298.69	1299.05
12	1321.32	1320.24	1322.11	1320.58	1316.80	1314.25	1310.10	1304.84	1300.32	A	1298.72	1299.10
13	1321.22	1320.20	1321.99	1320.54	1316.68	1314.05	1309.96	1304.68	1300.22	A	1298.76	1299.24
14	1321.12	1320.30	1321.88	1320.47	1316.66	1313.95	1309.90	1304.52	1300.15	A	1298.79	1299.33
15	1321.06	1320.32	1321.79	1320.41	1316.59	1313.89	1309.84	1304.40	1300.11	A	1298.80	1299.45
16	1321.12	1321.37	1321.76	1320.36	1316.54	1313.81	1309.72	1304.26	1300.01	A	1298.80	1299.57
17	1321.08	1321.44	1321.73	1320.31	1316.46	1313.73	1309.64	1304.12	1300.03	A	1298.81	1299.71
18	1321.02	1322.35	1321.73	1320.18	1316.38	1313.63	1309.52	1304.00	1299.99	A	1298.80	1299.81
19	1320.96	1322.45	1321.70	1320.08	1315.88	1313.53	1309.40	1303.84	1299.91	A	1298.78	1299.87
20	1320.88	1322.57	1321.67	1320.02	1315.95	1313.43	1309.28	1303.66	1299.81	1297.76	1298.79	A
21	1320.84	A	1321.64	1319.78	1315.98	1313.31	1309.10	1303.48	1299.73	1297.74	1298.82	A
22	1320.80	A	1321.60	1319.52	1315.88	1313.15	1308.92	1303.30	1299.63	1297.70	1298.83	A
23	1320.75	A	1321.56	1319.26	1315.93	1312.96	1308.68	1303.12	1299.51	1297.67	1298.80	1300.77
24	1320.72	A	1321.53	1319.00	1315.90	1312.77	1308.46	1302.98	1299.39	1297.62	1298.82	1300.92
25	1320.68	A	1321.50	1318.76	1315.86	1312.60	1308.26	1302.86	1299.29	1297.58	1298.87	1301.06
26	1320.64	A	1321.46	1318.59	1315.80	1312.43	1308.12	1302.78	1299.47	1297.54	1298.93	1301.16
27	1320.62	A	1321.44	1318.45	1315.76	1312.25	1307.94	1302.68	1299.41	1297.50	1298.97	1301.25
28	1320.58	A	1321.41	1318.37	1315.94	1312.06	1307.74	1302.58	1299.28	1297.45	1299.00	1301.35
29	1320.54	A	1321.38	1318.26	---	1311.90	1307.50	1302.44	---	1297.57	1299.02	1301.40
30	1320.50	A	1321.31	1318.12	---	1311.76	1307.30	1302.32	---	1297.71	1298.94	1301.43
31	1320.47	---	1321.22	1318.03	---	1311.66	---	1302.20	---	1297.84	1298.83	---
MEAN	1321.14	---	---	1319.93	1316.67	---	1309.63	1304.37	---	---	1298.67	---
MAX	1321.77	---	---	1321.10	1317.94	---	1311.54	1307.08	---	---	1299.02	---
MIN	1320.47	---	---	1318.03	1315.76	---	1307.30	1302.20	---	---	1297.98	---

A No gage-height record

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION.--Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA.--8.31 mi² (21.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	5.1	7.2	12	7.0	7.1	6.1	9.9	e2.5	2.1	1.3	1.5
2	10	5.1	4.4	13	7.0	12	5.9	10	e7.1	2.1	1.4	1.4
3	10	5.1	3.3	8.8	6.9	13	6.0	9.9	12	2.0	1.5	1.5
4	10	4.8	e4.0	6.0	7.1	15	6.0	9.9	e8.3	1.9	1.7	1.4
5	9.9	5.3	e4.4	5.0	7.1	15	6.0	9.8	7.8	2.0	1.5	1.5
6	9.9	5.2	3.5	5.3	7.0	19	6.6	9.8	e5.8	1.9	1.5	1.8
7	9.7	5.2	3.2	5.0	7.1	19	6.6	9.3	e2.6	1.8	1.5	1.5
8	9.5	5.8	2.8	5.1	7.1	19	6.5	9.5	e2.6	1.9	1.5	1.5
9	9.3	5.4	5.3	5.0	7.0	19	11	9.5	e2.6	1.9	1.4	1.5
10	9.0	5.2	8.0	5.1	7.0	19	7.8	7.1	e2.7	1.7	1.5	1.5
11	18	5.4	7.8	6.1	7.0	19	5.8	5.6	e2.7	1.6	1.4	1.5
12	17	5.3	7.8	5.2	6.9	18	6.3	5.2	e2.8	1.6	1.4	1.8
13	17	5.2	7.8	5.0	6.8	18	6.3	4.9	e2.7	1.5	1.4	1.6
14	14	5.4	6.4	4.9	6.7	9.9	6.5	5.0	e2.7	1.6	1.3	1.6
15	9.4	5.6	4.8	5.0	6.7	6.0	6.8	4.8	e2.5	1.6	1.4	1.6
16	9.4	e6.9	4.2	5.0	6.5	6.0	6.8	4.6	2.5	1.5	1.4	1.6
17	8.5	e2.5	e2.7	5.0	6.6	5.9	6.9	4.6	2.5	1.5	1.3	1.7
18	8.5	e3.2	e2.7	4.9	6.4	5.8	7.1	4.5	2.3	1.4	1.4	1.7
19	8.3	5.7	e2.7	8.7	13	5.7	7.5	4.4	2.5	1.4	1.3	1.7
20	8.1	20	e2.6	13	15	5.6	7.4	4.6	2.5	1.3	1.5	2.5
21	8.0	80	e2.6	14	6.8	6.5	10	4.5	2.4	1.3	1.4	1.8
22	7.7	19	e2.9	13	6.4	8.8	11	4.5	2.5	1.3	1.4	1.6
23	7.6	9.7	e3.6	13	6.3	9.4	14	4.4	2.4	1.3	1.4	1.8
24	7.5	6.6	e2.6	13	6.3	9.7	13	e2.7	2.4	1.3	1.5	1.7
25	6.5	5.3	e2.6	11	6.0	9.8	11	e2.3	2.5	1.2	1.5	1.6
26	5.2	7.4	e2.6	8.1	6.2	9.8	10	e2.3	2.5	1.3	1.6	1.7
27	5.4	6.4	e2.8	12	6.1	9.7	10	e2.4	2.6	1.2	1.5	1.6
28	5.1	4.4	e3.2	5.9	6.7	8.7	11	e2.5	2.5	1.3	1.4	1.6
29	5.0	3.8	e3.5	11	---	8.9	10	e2.5	2.4	1.3	1.4	1.7
30	5.3	10	e5.7	13	---	8.0	10	e2.4	2.2	1.2	1.3	1.6
31	5.1	---	7.5	7.1	---	5.9	---	e2.6	---	1.3	1.5	---
TOTAL	283.9	270.0	135.2	254.2	202.7	352.2	245.9	176.0	104.1	48.3	44.5	49.1
MEAN	9.16	9.00	4.36	8.20	7.24	11.4	8.20	5.68	3.47	1.56	1.44	1.64
MAX	18	80	8.0	14	15	19	14	10	12	2.1	1.7	2.5
MIN	5.0	2.5	2.6	4.9	6.0	5.6	5.8	2.3	2.2	1.2	1.3	1.4
AC-FT	563	536	268	504	402	699	488	349	206	96	88	97
CFSM	1.10	1.08	.52	.99	.87	1.37	.99	.68	.42	.19	.17	.20
IN.	1.27	1.21	.60	1.14	.91	1.57	1.10	.79	.47	.22	.20	.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

	1991	1992	1993	1994	1991	1992	1993	1994	1991	1992	1993	1994
MEAN	15.6	27.4	16.1	22.8	19.3	16.9	13.6	8.03	12.2	18.1	14.1	10.8
MAX	20.5	41.2	30.4	59.6	36.5	23.7	23.0	12.2	17.8	39.6	27.5	16.0
(WY)	1992	1992	1992	1992	1991	1992	1992	1991	1992	1993	1991	1991
MIN	9.16	9.00	4.36	8.20	7.24	11.4	8.20	4.13	3.47	1.56	1.44	1.64
(WY)	1994	1994	1994	1994	1994	1994	1994	1993	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1991 - 1994

ANNUAL TOTAL	4757.3	2166.1	15.4
ANNUAL MEAN	13.0	5.93	24.7
HIGHEST ANNUAL MEAN			1992
LOWEST ANNUAL MEAN			5.93
HIGHEST DAILY MEAN	632	80	981
LOWEST DAILY MEAN	2.5	1.2	.60
ANNUAL SEVEN-DAY MINIMUM	2.8	1.3	1.3
INSTANTANEOUS PEAK FLOW		165	2090
INSTANTANEOUS PEAK STAGE		10.53	16.56
ANNUAL RUNOFF (AC-FT)	9440	4300	11180
ANNUAL RUNOFF (CFSM)	1.57	.71	1.85
ANNUAL RUNOFF (INCHES)	21.27	9.68	25.19
10 PERCENT EXCEEDS	18	11	29
50 PERCENT EXCEEDS	8.2	5.2	11
90 PERCENT EXCEEDS	3.6	1.5	2.7

e Estimated

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a field observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,670 mg/L Jan. 05, 1992; Minimum daily mean, 3 mg/L Nov. 27, 1993.

SEDIMENT LOADS: Maximum daily mean, 9,830 tons (8,920 tonnes) Jan. 05, 1992; Minimum daily mean, 0.02 ton (0.02 tonne) Nov. 27, 1993.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 399 mg/L Nov. 21, 1993; Minimum daily mean, 3 mg/L Nov. 27, 1993.

SEDIMENT LOADS: Maximum daily mean, 142 tons (129 tonnes) Nov. 21, 1993; Minimum daily mean, 0.02 ton (0.02 tonne) Nov. 21, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	10	35	.98	5.1	15	.20	7.2	17	.34
2	10	50	1.4	5.1	17	.24	4.4	22	.28
3	10	35	1.0	5.1	20	.27	3.3	20	.19
4	10	35	.98	4.8	19	.25	e4.0	21	e.24
5	9.9	35	.95	5.3	19	.33	e4.4	22	e.26
6	9.9	35	.96	5.2	25	.36	3.5	22	.23
7	9.7	35	.96	5.2	37	.54	3.2	19	.17
8	9.5	61	1.6	5.8	38	.63	2.8	22	.16
9	9.3	56	1.4	5.4	37	.54	5.3	62	1.0
10	9.0	44	1.1	5.2	36	.51	8.0	99	2.3
11	18	35	1.7	5.4	33	.52	7.8	105	2.3
12	17	29	1.4	5.3	31	.47	7.8	89	1.9
13	17	27	1.2	5.2	33	.48	7.8	62	1.3
14	14	25	.98	5.4	35	.58	6.4	43	.74
15	9.4	24	.62	5.6	38	.60	4.8	40	.54
16	9.4	21	.57	e6.9	197	e12	4.2	37	.44
17	8.5	21	.53	e2.5	75	e.51	e2.7	43	e.34
18	8.5	34	.79	e3.2	52	e.46	e2.7	37	e.28
19	8.3	57	1.3	5.7	34	.54	e2.7	25	e.19
20	8.1	76	1.7	20	29	3.1	e2.6	15	e.11
21	8.0	87	1.9	80	399	142	e2.6	15	e.13
22	7.7	92	1.9	19	36	2.0	e2.9	16	e.11
23	7.6	95	2.0	9.7	31	.79	e3.6	16	e.17
24	7.5	95	2.0	6.6	28	.47	e2.6	15	e.09
25	6.5	75	1.4	5.3	25	.30	e2.6	15	e.09
26	5.2	54	.75	7.4	22	.42	e2.6	20	e.15
27	5.4	40	.60	6.4	3	.02	e2.8	14	e.12
28	5.1	27	.39	4.4	21	.25	e3.2	14	e.12
29	5.0	19	.26	3.8	20	.20	e3.5	12	e.10
30	5.3	14	.23	10	20	.60	e5.7	22	e.38
31	5.1	13	.18	---	---	---	7.5	36	.77
TOTAL	283.9	---	33.73	270.0	---	170.18	135.2	---	15.54

e Estimated

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	12	43	1.5	7.0	17	.36	7.1	16	.30
2	13	36	1.3	7.0	22	.45	12	12	.40
3	8.8	31	.72	6.9	25	.50	13	17	.57
4	6.0	28	.46	7.1	22	.45	15	19	.77
5	5.0	36	.49	7.1	19	.37	15	18	.75
6	5.3	47	.69	7.0	18	.36	19	18	.95
7	5.0	51	.71	7.1	19	.37	19	15	.74
8	5.1	48	.69	7.1	24	.48	19	19	1.0
9	5.0	44	.62	7.0	24	.46	19	18	1.0
10	5.1	43	.58	7.0	26	.51	19	19	1.1
11	6.1	41	.73	7.0	28	.56	19	16	.89
12	5.2	40	.58	6.9	28	.52	18	17	.88
13	5.0	38	.53	6.8	30	.58	18	18	.95
14	4.9	39	.53	6.7	33	.62	9.9	15	.42
15	5.0	41	.59	6.7	35	.66	6.0	15	.24
16	5.0	43	.61	6.5	37	.68	6.0	14	.25
17	5.0	45	.63	6.6	38	.68	5.9	12	.22
18	4.9	45	.60	6.4	39	.71	5.8	15	.26
19	8.7	46	1.1	13	31	1.0	5.7	15	.26
20	13	37	1.3	15	16	.71	5.6	16	.25
21	14	25	.96	6.8	10	.17	6.5	16	.29
22	13	21	.76	6.4	17	.33	8.8	14	.35
23	13	20	.70	6.3	16	.29	9.4	14	.41
24	13	20	.70	6.3	13	.24	9.7	15	.42
25	11	13	.41	6.0	18	.31	9.8	14	.40
26	8.1	16	.36	6.2	27	.47	9.8	12	.35
27	12	11	.36	6.1	27	.45	9.7	14	.38
28	5.9	11	.19	6.7	23	.40	8.7	15	.40
29	11	12	.40	---	---	---	8.9	15	.39
30	13	14	.52	---	---	---	8.0	20	.49
31	7.1	13	.30	---	---	---	5.9	16	.27
TOTAL	254.2	---	20.62	202.7	---	13.69	352.2	---	16.35

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	6.1	17	.29	9.9	48	1.3	e2.5	18	e.14
2	5.9	13	.22	10	54	1.5	e7.1	22	e.47
3	6.0	13	.28	9.9	49	1.3	12	33	e1.0
4	6.0	13	.21	9.9	49	1.4	e8.3	33	e.79
5	6.0	12	.21	9.8	49	1.3	7.8	27	.61
6	6.6	13	.23	9.8	48	1.3	e5.8	14	e.27
7	6.6	12	.20	9.3	48	1.2	e2.6	6	e.05
8	6.5	14	.26	9.5	48	1.3	e2.6	3	e.03
9	11	13	.44	9.5	48	1.2	e2.6	9	e.06
10	7.8	10	.23	7.1	48	.93	e2.7	5	e.03
11	5.8	13	.21	5.6	48	.75	e2.7	15	e.11
12	6.3	13	.25	5.2	48	.69	e2.8	23	e.16
13	6.3	13	.24	4.9	48	.67	e2.7	11	e.07
14	6.5	15	.28	5.0	48	.69	e2.7	12	e.09
15	6.8	14	.29	4.8	48	.64	e2.5	15	e.09
16	6.8	16	.33	4.6	47	.59	2.5	17	.11
17	6.9	17	.35	4.6	46	.57	2.5	19	.14
18	7.1	15	.32	4.5	44	.52	2.3	21	.13
19	7.5	17	.38	4.4	43	.50	2.5	22	.18
20	7.4	15	.35	4.6	41	.52	2.5	23	.14
21	10	17	.48	4.5	39	.49	2.4	24	.15
22	11	18	.58	4.5	38	.48	2.5	27	.20
23	14	19	.78	4.4	37	.45	2.4	28	.19
24	13	26	.90	e2.7	36	e.26	2.4	32	.22
25	11	38	1.1	e2.3	34	e.21	2.5	34	.24
26	10	45	1.3	e2.3	35	e.23	2.5	36	.25
27	10	46	1.3	e2.4	27	e.19	2.6	36	.25
28	11	48	1.4	e2.5	18	e.11	2.5	12	.07
29	10	48	1.3	e2.5	15	e.12	2.4	12	.10
30	10	48	1.3	e2.4	19	e.15	2.2	26	.17
31	---	---	---	e2.6	16	e.12	---	---	---
TOTAL	245.9	---	16.01	176.0	---	21.68	104.1	---	6.51

e Estimated

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.1	36	.21	1.3	50	.18	1.5	62	.25
2	2.1	43	.23	1.4	50	.20	1.4	62	.23
3	2.0	49	.27	1.5	51	.21	1.5	62	.25
4	1.9	44	.21	1.7	52	.23	1.4	62	.23
5	2.0	33	.20	1.5	54	.23	1.5	62	.27
6	1.9	32	.17	1.5	55	.24	1.8	62	.30
7	1.8	24	.12	1.5	57	.23	1.5	62	.25
8	1.9	25	.14	1.5	52	.20	1.5	62	.25
9	1.9	23	.13	1.4	44	.16	1.5	62	.26
10	1.7	23	.13	1.5	40	.16	1.5	62	.26
11	1.6	25	.11	1.4	52	.20	1.5	62	.26
12	1.6	27	.10	1.4	73	.29	1.8	62	.30
13	1.5	27	.11	1.4	87	.32	1.6	62	.26
14	1.6	27	.11	1.3	76	.27	1.6	62	.26
15	1.6	24	.11	1.4	56	.22	1.6	57	.24
16	1.5	24	.09	1.4	46	.18	1.6	52	.24
17	1.5	25	.10	1.3	50	.18	1.7	50	.23
18	1.4	29	.11	1.4	59	.21	1.7	49	.22
19	1.4	30	.11	1.3	61	.22	1.7	49	.22
20	1.3	28	.10	1.5	62	.26	2.5	48	.33
21	1.3	25	.08	1.4	63	.25	1.8	49	.24
22	1.3	24	.07	1.4	63	.25	1.6	49	.22
23	1.3	47	.17	1.4	61	.23	1.8	49	.24
24	1.3	52	.18	1.5	62	.25	1.7	50	.23
25	1.2	52	.16	1.5	62	.25	1.6	44	.20
26	1.3	52	.17	1.6	62	.27	1.7	39	.19
27	1.2	52	.17	1.5	62	.24	1.6	34	.15
28	1.3	52	.19	1.4	62	.24	1.6	32	.14
29	1.3	51	.16	1.4	62	.23	1.7	31	.14
30	1.2	51	.17	1.3	62	.23	1.6	29	.12
31	1.3	51	.16	1.5	62	.25	---	---	---
TOTAL	48.3	---	4.54	44.5	---	7.08	49.1	---	6.98
YEAR	2166.1		332.91						

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
02...	1626	9.8	133	9.8	90
27...	1808	5.4	76	1.1	87
DEC					
11...	1201	8.0	108	2.3	90
JUL 1994					
01...	1630	2.3	31	0.2	90
23...	1201	1.4	52	0.2	88
SEP					
27...	1615	1.5	453	1.8	62

RIO DE BAYAMON BASIN

155

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'39", long 66°08'39", at bridge on Highway 156, and 2.9 mi (4.7 km) west of Aguas Buenas plaza.

DRAINAGE AREA.--18.5 mi² (47.9 km²).

PERIOD OF RECORD.--Water years 1958-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
12...	1140	38	240	8.1	25.0	21	7.1	86	14	K60000	230
DEC 03...	1120	22	276	7.7	23.0	4.7	4.6	54	14	K810	510
FEB 1994											
02...	1050	18	268	8.0	21.5	1.5	4.6	52	<10	550	1000
APR 18...	1130	15	280	7.9	24.0	0.50	7.0	85	<10	K20	350
JUN 15...	1255	6.4	310	8.5	25.0	0.50	8.8	109	12	K73	340
AUG 22...	1245	5.5	336	7.8	27.0	2.4	9.6	123	13	K50	220

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
12...	87	20	9.0	15	0.7	2.5	89	<0.5	4.4	15	0.20
DEC 03...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
02...	--	--	--	--	--	--	110	--	--	--	--
APR 18...	110	24	11	19	0.8	2.4	120	<0.5	8.9	19	0.10
JUN 15...	--	--	--	--	--	--	130	--	--	--	--
AUG 22...	140	31	14	15	0.6	1.5	140	--	8.4	20	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
12...	21	140	14.3	4	<0.20	0.010	<1	<100	30	<1	<1
DEC 03...	--	--	--	2	0.30	0.030	--	--	--	--	--
FEB 1994				5	<0.20	0.030	--	--	--	--	--
02...	--	--	--								
APR 18...	23	179	7.51	5	--	--	<1	<100	30	<1	<1
JUN 15...	--	--	--	2	0.20	0.040	--	--	--	--	--
AUG 22...	37	211	3.11	4	0.20	0.030	--	--	--	--	--

K = non-ideal count

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE BAYAMON BASIN

50047850 RIO BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi (2.1 km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA.--41.8 mi² (108.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1964 to October 1970, June 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	e16	17	15	12	13	5.2	5.2	3.6	4.2	3.4	10
2	16	e11	16	17	11	12	5.1	5.0	4.7	4.6	3.2	10
3	22	10	15	15	11	10	4.8	4.7	4.1	5.1	3.0	8.6
4	21	10	e19	15	10	9.1	4.9	4.5	3.4	5.0	3.6	6.5
5	15	10	e17	15	11	7.3	8.4	5.4	3.3	4.5	3.7	5.1
6	21	10	15	14	10	7.4	11	5.1	3.6	7.9	3.8	5.9
7	e15	10	14	14	8.6	7.3	6.0	5.2	3.5	5.7	4.7	6.2
8	e16	15	13	14	8.4	6.7	5.9	5.3	3.3	4.1	11	5.4
9	e14	13	13	13	7.8	7.4	5.5	5.0	3.4	3.8	15	4.6
10	e13	12	e14	13	8.1	7.3	17	5.8	3.6	3.4	6.2	4.5
11	e13	11	e13	20	7.9	6.7	10	6.0	3.6	2.8	7.0	6.8
12	e12	10	13	14	7.4	6.7	20	5.8	3.5	2.6	3.3	5.6
13	e12	16	13	14	7.2	6.5	7.6	5.9	3.5	2.7	3.2	5.1
14	e13	21	15	14	7.4	7.0	8.8	5.9	3.5	2.8	3.6	5.1
15	e12	35	13	15	7.6	6.3	8.5	5.9	3.4	2.7	4.1	5.0
16	e100	126	11	15	7.2	7.3	7.6	5.8	3.4	2.8	4.9	5.5
17	e45	71	12	14	7.4	6.8	13	5.6	4.1	2.8	5.8	5.2
18	e15	149	17	12	7.6	6.2	8.1	5.7	4.5	14	12	4.7
19	e14	98	13	11	6.8	6.9	5.9	5.5	4.0	6.2	28	4.7
20	e13	38	12	13	6.7	6.7	5.9	4.9	3.6	3.4	11	6.1
21	e12	102	12	12	6.5	6.6	5.8	4.8	3.3	3.1	4.1	7.6
22	e13	44	13	15	6.8	6.5	5.4	4.2	3.2	3.0	3.7	7.5
23	e12	23	13	15	6.9	5.8	4.8	3.9	2.9	2.9	3.2	8.0
24	e12	18	12	14	6.8	5.6	4.4	3.9	3.2	2.9	13	24
25	e12	17	12	13	5.8	5.6	4.1	3.8	3.3	2.9	17	8.2
26	11	18	12	12	5.9	5.5	4.6	3.5	4.2	2.8	7.6	5.6
27	11	e17	15	11	36	5.5	57	3.4	4.5	2.9	6.2	4.6
28	11	e20	18	13	22	4.9	34	3.5	4.0	3.2	15	4.3
29	e11	e18	15	12	---	7.2	7.2	3.8	4.0	3.2	10	4.3
30	e10	16	15	12	---	6.0	6.2	3.6	4.1	3.2	6.0	4.1
31	e10	---	14	12	---	5.3	---	3.7	---	3.2	5.4	---
TOTAL	541	985	436	428	267.8	219.1	302.7	150.3	110.3	124.4	231.7	198.8
MEAN	17.5	32.8	14.1	13.8	9.56	7.07	10.1	4.85	3.68	4.01	7.47	6.63
MAX	100	149	19	20	36	13	57	6.0	4.7	14	28	24
MIN	10	10	11	11	5.8	4.9	4.1	3.4	2.9	2.6	3.0	4.1
AC-FT	1070	1950	865	849	531	435	600	298	219	247	460	394
CFSM	.42	.79	.34	.33	.23	.17	.24	.12	.09	.10	.18	.16
IN.	.48	.88	.39	.38	.24	.19	.27	.13	.10	.11	.21	.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1994, BY WATER YEAR (WY)

	MEAN	33.6	48.5	46.2	36.7	21.8	18.6	23.1	46.9	20.4	21.9	41.0	40.0
MAX	129	174	263	159	75.3	52.9	72.7	131	60.8	46.6	137	146	
(WY)	1991	1970	1966	1969	1989	1990	1971	1966	1970	1970	1970	1989	
MIN	4.30	7.91	5.19	5.30	4.75	3.58	5.36	4.85	3.68	4.01	7.47	6.02	
(WY)	1969	1965	1968	1968	1965	1965	1965	1994	1994	1994	1994	1967	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1964 - 1994
ANNUAL TOTAL	11108.6	3995.1	
ANNUAL MEAN	30.4	10.9	33.0
HIGHEST ANNUAL MEAN			59.7
LOWEST ANNUAL MEAN			10.9
HIGHEST DAILY MEAN	314	Jul 24	5500
LOWEST DAILY MEAN	9.2	Sep 3	2.2
ANNUAL SEVEN-DAY MINIMUM	9.3	Aug 30	2.4
INSTANTANEOUS PEAK FLOW			28000
INSTANTANEOUS PEAK STAGE			20.20
ANNUAL RUNOFF (AC-FT)	22030	7920	23920
ANNUAL RUNOFF (CFSM)	.73	.26	.79
ANNUAL RUNOFF (INCHES)	9.89	3.56	10.73
10 PERCENT EXCEEDS	73	17	59
50 PERCENT EXCEEDS	16	7.3	13
90 PERCENT EXCEEDS	11	3.4	4.7

e Estimated

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamon plaza.

DRAINAGE AREA.--73.2 mi² (189.6 km²).

PERIOD OF RECORD.--Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
27...	1150	18	396	8.0	29.0	2.0	8.9	115	12	33000	8000
DEC 09...	1045	16	450	7.8	24.5	3.6	8.2	98	<10	380000	69000
FEB 1994											
23...	1240	0.0	469	7.3	24.0	0.60	4.7	55	18	3000	690
APR 11...	1010	43	440	7.3	25.0	--	4.4	52	--	56000	22000
JUN 10...	0955	--	490	7.4	27.0	1.5	3.6	44	20	K680	400
AUG 02...	0650	--	424	7.2	27.0	2.3	1.4	17	16	190000	36000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
27...	160	40	14	24	0.8	2.5	150	<0.5	14	25	0.20
DEC 09...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
23...	--	--	--	--	--	--	180	--	--	--	--
APR 11...	--	--	--	--	--	--	150	<0.5	--	--	--
JUN 10...	--	--	--	--	--	--	190	--	--	--	--
AUG 02...	150	40	11	27	1	3.8	150	--	9.2	36	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)	COPPER, TOTAL RECOV-ERABLE (UG/L AS Cu)
OCT 1993											
27...	34	244	64	0.30	0.110	1	100	30	<1	<1	<10
DEC 09...	--	--	16	0.20	0.080	--	--	--	--	--	--
FEB 1994											
23...	--	--	7	0.60	0.360	--	--	--	--	--	--
APR 11...	--	--	--	--	--	1	100	50	<1	<1	10
JUN 10...	--	--	1	--	--	--	--	--	--	--	--
AUG 02...	29	246	10	1.4	0.380	--	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi² (186.2 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
27...	1345	22	414	7.7	30.0	18	9.1	120	13	K600000	K80000
DEC 09...	1315	26	390	7.8	30.5	3.7	8.3	109	11	670000	140000
MAR 1994											
01...	1345	35	313	8.3	28.5	33	6.0	77	22	36000	850
APR 11...	1200	100	235	7.1	26.0	--	5.6	68	--	K72000	67000
JUN 10...	0850	2.2	517	7.4	28.0	2.3	4.2	53	14	490	430
AUG 02...	1045	2.5	410	7.1	30.0	2.2	3.4	44	19	32000	110

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
27...	170	43	14	23	0.8	2.5	150	<0.5	14	25	0.20
DEC 09...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
01...	--	--	--	--	--	--	120	--	--	--	--
APR 11...	--	--	--	--	--	--	77	<0.5	--	--	--
JUN 10...	--	--	--	--	--	--	200	--	--	--	--
AUG 02...	150	40	11	24	0.9	3.4	140	--	19	30	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
27...	32	244	14.7	27	0.30	0.120	1	100	40	<1	2
DEC 09...	--	--	--	22	--	--	--	--	--	--	--
MAR 1994				54	0.60	0.190	--	--	--	--	--
APR 11...	--	--	--	--	--	--	<1	<100	30	<1	5
JUN 10...	--	--	--	9	--	--	--	--	--	--	--
AUG 02...	26	237	1.57	12	0.60	0.130	--	--	--	--	--

K = non-ideal count

RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993 27...	10	1600	3	340	<0.10	<1	<1	10	<0.010	3	0.02
DEC 09...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994 01...	--	--	--	--	--	--	--	--	--	--	--
APR 11...	20	4800	5	260	<0.10	<1	<1	40	<0.010	5	0.08
JUN 10...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 10...	0850	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.01	<0.010	<0.010
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
JUN 1994 10...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUN 1994 10...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Señorial Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--7.49 mi² (19.40 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORDS.--March 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records poor. Low flow is affected by wastes water discharge from water treatment plant of PRASA and others dispersed pollution points directly to the river. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.3	4.5	e11	7.8	5.1	4.9	3.8	3.6	2.0	3.3	3.6	5.6
2	4.8	12	e6.4	8.7	5.5	4.8	3.8	3.6	2.0	34	2.5	13
3	4.2	5.7	e5.2	5.9	5.2	3.8	3.5	3.5	2.0	3.5	3.0	3.1
4	149	6.1	e4.7	4.5	5.6	3.4	3.4	3.4	2.0	2.8	3.3	2.8
5	17	5.5	e5.2	4.6	4.7	3.4	20	4.0	2.0	2.6	5.8	2.9
6	26	5.2	e4.4	4.8	4.9	3.9	3.8	3.4	2.8	12	2.4	3.4
7	9.6	5.4	e4.2	5.0	5.0	3.7	3.2	11	2.0	2.5	4.9	4.8
8	7.7	32	e15	4.2	5.0	3.6	3.7	4.8	1.9	2.7	56	2.8
9	6.7	13	e4.5	5.0	5.2	3.7	4.0	3.2	2.0	2.3	3.8	2.9
10	6.3	6.4	e5.0	4.5	5.3	4.3	78	5.6	2.2	2.5	3.7	3.1
11	5.5	6.4	e5.6	50	4.9	3.3	6.3	3.0	2.1	2.3	2.6	2.8
12	4.9	6.3	5.3	7.8	5.0	3.4	9.1	2.8	2.1	2.4	2.6	2.4
13	4.9	25	5.0	5.4	4.3	3.4	5.1	2.8	1.9	2.8	2.3	4.0
14	5.3	23	5.8	5.1	5.4	3.4	8.4	2.7	2.8	2.9	4.1	4.9
15	5.1	75	5.9	5.4	4.7	3.2	8.6	2.9	7.3	2.6	1.9	28
16	13	101	6.3	8.1	4.4	3.5	9.6	2.7	2.1	8.4	2.2	5.9
17	43	27	5.4	5.4	4.4	3.5	5.7	2.5	2.8	2.7	e2.0	2.4
18	9.3	20	41	4.4	4.0	3.3	5.4	3.1	2.0	3.7	e4.3	2.1
19	9.5	12	7.0	4.6	e3.9	3.7	4.5	2.5	1.9	2.6	23	5.5
20	13	6.6	13	6.2	e4.2	3.7	4.4	3.1	2.0	3.7	3.6	72
21	8.8	5.7	4.8	7.4	e3.9	3.3	3.9	3.0	2.0	2.2	2.3	4.4
22	7.7	5.3	5.3	11	3.6	3.3	4.2	2.1	1.8	2.8	4.0	3.0
23	4.8	5.4	3.9	37	3.6	3.3	3.8	2.5	1.8	2.9	55	6.0
24	4.3	6.6	3.9	6.6	3.7	3.2	3.9	2.8	1.8	3.2	23	52
25	4.2	6.1	4.4	4.9	4.2	3.5	4.1	2.3	2.8	2.8	4.5	13
26	4.1	9.2	4.2	4.6	3.9	3.4	3.9	2.2	4.0	2.1	2.9	3.1
27	4.1	5.9	8.9	8.9	6.8	3.5	5.6	2.1	2.1	2.2	3.8	2.7
28	4.0	7.0	7.7	5.8	4.0	3.7	4.3	7.4	3.3	1.9	133	2.7
29	4.3	e5.1	5.5	15	---	3.8	3.7	2.2	2.3	3.0	9.9	2.9
30	5.3	e31	6.6	4.8	---	4.3	3.7	2.0	10	1.9	4.9	2.6
31	4.3	---	4.9	4.7	---	3.8	---	2.1	---	3.6	3.5	---
TOTAL	407.0	485.4	226.0	268.1	130.4	113.0	235.4	104.9	79.8	130.9	384.4	266.8
MEAN	13.1	16.2	7.29	8.65	4.66	3.65	7.85	3.38	2.66	4.22	12.4	8.89
MAX	149	101	41	50	6.8	4.9	78	11	10	34	133	72
MIN	4.0	4.5	3.9	4.2	3.6	3.2	3.2	2.0	1.8	1.9	1.9	2.1
AC-FT	807	963	448	532	259	224	467	208	158	260	762	529
CFSM	1.75	2.16	.97	1.15	.62	.49	1.05	.45	.36	.56	1.66	1.19
IN.	2.02	2.41	1.12	1.33	.65	.56	1.17	.52	.40	.65	1.91	1.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

	MEAN	26.6	23.7	16.3	15.7	11.9	10.8	14.4	18.4	13.1	17.4	24.2	23.1
MAX	57.3	59.8	40.5	24.4	23.6	19.5	23.9	47.2	24.8	38.0	66.9	59.5	
(WY)	1991	1993	1993	1992	1991	1990	1993	1992	1989	1993	1992	1989	
MIN	8.48	7.51	7.29	8.65	4.66	3.65	7.85	3.38	2.66	4.22	6.60	6.90	
(WY)	1992	1991	1994	1994	1994	1994	1994	1994	1994	1994	1990	1991	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1988 - 1994

ANNUAL TOTAL	6178.9	2832.1	
ANNUAL MEAN	16.9	7.76	17.7
HIGHEST ANNUAL MEAN			24.1
LOWEST ANNUAL MEAN			7.76
HIGHEST DAILY MEAN	359	149	621
LOWEST DAILY MEAN	3.1	1.8	1.6
ANNUAL SEVEN-DAY MINIMUM	4.1	1.9	1.9
INSTANTANEOUS PEAK FLOW		2130	4680
INSTANTANEOUS PEAK STAGE		11.42	16.08
ANNUAL RUNOFF (AC-FT)	12260	5620	12850
ANNUAL RUNOFF (CFSM)	2.26	1.04	2.37
ANNUAL RUNOFF (INCHES)	30.69	14.07	32.17
10 PERCENT EXCEEDS	32	12	38
50 PERCENT EXCEEDS	7.1	4.2	7.9
90 PERCENT EXCEEDS	4.7	2.3	3.8

e Estimated

RIO PUERTO NUEVO BASIN
50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued
WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1994.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L Sep. 18, 1989; Minimum daily mean, 2 mg/L November 18, 1988.

SEDIMENT LOADS: Maximum daily mean, e114,000tons (e103,000tonnes) Sep. 18, 1989; Minimum daily mean, 0.02 ton (0.02 tonne) June 9, 1994.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,150 mg/L Nov. 16, 1993; Minimum daily mean, 4 mg/l Dec. 16, 1993.

SEDIMENT LOADS: Maximum daily mean, 2,730 tons (2,480 tonnes) Oct. 04, 1993; Minimum daily mean, 0.02 ton (0.02 tonne) Jun. 09, 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	6.3	46	.89	4.5	29	.37	e11	34	e1.0
2	4.8	30	.39	12	543	87	e6.4	34	e.58
3	4.2	27	.29	5.7	41	.64	e5.2	32	e.45
4	149	1830	2730	6.1	40	.67	e4.7	31	e.39
5	17	202	16	5.5	39	.57	e5.2	31	e.39
6	26	1200	210	5.2	37	.53	e4.4	29	e.34
7	9.6	61	1.7	5.4	35	.49	e4.2	28	e.31
8	7.7	52	1.1	32	1320	308	e15	27	e.1
9	6.7	47	.90	13	61	2.2	e4.5	25	e.30
10	6.3	43	.73	6.4	44	.76	e5.0	22	e.31
11	5.5	40	.58	6.4	41	.74	e5.6	18	e.24
12	4.9	38	.50	6.3	38	.68	5.3	15	.21
13	4.9	36	.47	25	1260	197	5.0	12	.17
14	5.3	34	.49	23	2110	164	5.8	8	.13
15	5.1	33	.44	75	4000	882	5.9	6	.10
16	13	806	65	101	4150	1280	6.3	4	.08
17	43	962	491	27	1390	190	5.4	11	.18
18	9.3	106	2.7	20	781	79	41	2770	489
19	9.5	539	39	12	61	2.2	7.0	124	7.9
20	13	879	74	6.6	45	.81	13	413	55
21	8.8	45	.70	5.7	45	.70	4.8	29	.38
22	7.7	264	13	5.3	45	.68	5.3	27	.39
23	4.8	32	.40	5.4	45	.66	3.9	26	.26
24	4.3	32	.37	6.6	45	.86	3.9	25	.27
25	4.2	31	.35	6.1	45	.78	4.4	24	.28
26	4.1	30	.32	9.2	287	24	4.2	24	.28
27	4.1	28	.30	5.9	39	.63	8.9	475	29
28	4.0	28	.30	7.0	37	.67	7.7	222	12
29	4.3	29	.32	e5.1	35	e.48	5.5	27	.41
30	5.3	30	.43	e31	34	e2.8	6.6	18	.36
31	4.3	30	.34	---	---	---	4.9	12	.16
TOTAL	407.0	---	3653.01	485.4	---	3229.92	226.0	---	601.97

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	7.8	309	18	5.1	31	.42	4.9	37	.76
2	8.7	64	1.8	5.5	31	.46	4.8	22	.28
3	5.9	30	.47	5.2	30	.43	3.8	20	.20
4	4.5	30	.36	5.6	39	.73	3.4	18	.16
5	4.6	30	.38	4.7	30	.38	3.4	15	.14
6	4.8	30	.38	4.9	30	.39	3.9	14	.14
7	5.0	29	.39	5.0	30	.40	3.7	11	.11
8	4.2	29	.33	5.0	30	.40	3.6	8	.08
9	5.0	28	.36	5.2	30	.42	3.7	9	.09
10	4.5	26	.33	5.3	30	.44	4.3	10	.11
11	50	2280	585	4.9	30	.39	3.3	11	.10
12	7.8	68	1.5	5.0	29	.39	3.4	13	.12
13	5.4	40	.61	4.3	28	.33	3.4	14	.12
14	5.1	32	.45	5.4	43	.71	3.4	15	.12
15	5.4	36	.76	4.7	36	.47	3.2	15	.12
16	8.1	369	25	4.4	36	.42	3.5	15	.14
17	5.4	41	.60	4.4	36	.42	3.5	15	.13
18	4.4	34	.40	4.0	36	.39	3.3	16	.14
19	4.6	30	.37	3.9	35	.36	3.7	17	.18
20	6.2	38	.86	4.2	34	.38	3.7	19	.19
21	7.4	91	2.4	3.9	33	.33	3.3	17	.16
22	11	598	62	3.6	31	.31	3.3	18	.16
23	37	2850	1200	3.6	31	.30	3.3	18	.16
24	6.6	52	1.0	3.7	30	.30	3.2	19	.16
25	4.9	31	.40	4.2	28	.32	3.5	19	.19
26	4.6	29	.35	3.9	27	.28	3.4	20	.19
27	8.9	325	50	6.8	52	2.2	3.5	20	.20
28	5.8	44	.80	4.0	25	.27	3.7	20	.20
29	15	685	103	---	---	---	3.8	20	.20
30	4.8	32	.42	---	---	---	4.3	21	.24
31	4.7	32	.40	---	---	---	3.8	21	.21
TOTAL	268.1	---	2059.12	130.4	---	13.04	113.0	---	5.50

• Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	3.8	21	.21	3.6	27	.26	2.0	14	.08
2	3.8	21	.21	3.6	26	.24	2.0	14	.08
3	3.5	21	.20	3.5	25	.22	2.0	14	.07
4	3.4	21	.20	3.4	23	.21	2.0	13	.07
5	20	1010	200	4.0	22	.24	2.0	12	.06
6	3.8	40	.45	3.4	20	.19	2.8	11	.09
7	3.2	35	.30	11	325	.88	2.0	7	.04
8	3.7	28	.27	4.8	36	.68	1.9	5	.03
9	4.0	21	.23	3.2	26	.22	2.0	5	.02
10	78	517	238	5.6	253	.19	2.2	7	.03
11	6.3	35	.57	3.0	73	.61	2.1	8	.04
12	9.1	73	3.3	2.8	41	.30	2.1	9	.05
13	5.1	31	.44	2.8	23	.17	1.9	10	.05
14	8.4	62	2.6	2.7	19	.13	2.8	18	.27
15	8.6	75	2.3	2.9	18	.12	7.3	312	34
16	9.6	179	24	2.7	16	.12	2.1	14	.08
17	5.7	39	.61	2.5	15	.11	2.8	14	.11
18	5.4	34	.48	3.1	21	.26	2.0	14	.07
19	4.5	34	.42	2.5	14	.10	1.9	13	.06
20	4.4	34	.41	3.1	14	.12	2.0	13	.06
21	3.9	34	.36	3.0	14	.11	2.0	13	.06
22	4.2	32	.35	2.1	14	.07	1.8	13	.07
23	3.8	31	.31	2.5	13	.10	1.8	12	.06
24	3.9	31	.32	2.8	13	.11	1.8	12	.06
25	4.1	30	.35	2.3	13	.09	2.8	13	.10
26	3.9	29	.31	2.2	13	.08	4.0	12	.14
27	5.6	41	.88	2.1	12	.06	2.1	12	.06
28	4.3	30	.35	7.4	357	.54	3.3	23	.41
29	3.7	30	.30	2.2	15	.10	2.3	13	.09
30	3.7	28	.27	2.0	15	.08	10	545	66
31	---	---	---	2.1	15	.08	---	---	---
TOTAL	235.4	---	479.00	104.9	---	166.18	79.8	---	102.41

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	3.3	16	.14	3.6	14	.14	5.6	163	11
2	34	1160	382	2.5	14	.10	13	477	119
3	3.5	17	.18	3.0	14	.11	3.1	20	.17
4	2.8	15	.12	3.3	14	.13	2.8	20	.14
5	2.6	17	.11	5.8	132	14	2.9	18	.14
6	12	436	79	2.4	13	.07	3.4	17	.17
7	2.5	16	.10	4.9	240	16	4.8	233	13
8	2.7	16	.12	56	1340	802	2.8	22	.17
9	2.3	15	.10	3.8	56	.62	2.9	18	.14
10	2.5	15	.10	3.7	39	.38	3.1	22	.27
11	2.3	15	.10	2.6	28	.21	2.8	15	.12
12	2.4	15	.10	2.6	19	.13	2.4	15	.09
13	2.8	15	.12	2.3	15	.09	4.0	27	.65
14	2.9	15	.12	4.1	866	22	4.9	171	26
15	2.6	15	.11	1.9	595	3.1	28	986	356
16	8.4	305	41	2.2	465	2.9	5.9	212	29
17	2.7	16	.12	2.0	417	2.3	2.4	14	.09
18	3.7	15	.14	4.3	397	4.5	2.1	14	.09
19	2.6	15	.11	23	1280	254	5.5	254	29
20	3.7	14	.15	3.6	26	.27	72	2480	885
21	2.2	13	.08	2.3	15	.08	4.4	29	.37
22	2.8	13	.10	4.0	28	.58	3.0	22	.19
23	2.9	13	.11	55	1130	851	6.0	41	1.6
24	3.2	12	.10	23	1300	171	52	1490	669
25	2.8	11	.08	4.5	46	.68	13	474	70
26	2.1	10	.04	2.9	30	.23	3.1	20	.18
27	2.2	10	.06	3.8	77	4.9	2.7	17	.13
28	1.9	10	.05	133	1420	2430	2.7	17	.12
29	3.0	19	.22	9.9	90	4.5	2.9	16	.13
30	1.9	14	.07	4.9	31	.40	2.6	16	.12
31	3.6	14	.12	3.5	27	.26	---	---	---
TOTAL	130.9	---	505.07	384.4	---	4586.68	266.8	---	2212.08
YEAR	2832.1		17613.98						

• Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
DEC 1993							
18...	0415	62	14670	2460	50	59	61
JAN 1994							
11...	0855	95	7950	204	42	45	64
11...	1255	48	11310	1470	35	41	56
23...	1505	134	14730	5330	29	39	47
23...	1605	205	20760	11490	30	39	50
JUL							
02...	1215	38	7190	738	43	52	66

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
DEC 1993							
18...	78	87	99	99.7	99.9	100	100
JAN 1994							
11...	78	86	99	99.8	99.9	100	100
11...	68	81	97	99	99.8	99.9	100
23...	61	76	95	99	99.7	99.9	100
23...	63	75	90	97	99	99.9	100
JUL							
02...	77	84	99	99.7	99.9	100	100

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
DEC 1993					
30...	0335	111	9650	2900	96
JAN 1994					
11...	0345	214	5280	3050	81
23...	1725	129	10100	3520	93
APR					
10...	0915	122	3860	1270	68
JUL					
02...	1135	71	7980	1530	98
AUG					
18...	1145	2.1	404	2.3	98

RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Senorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras plaza.

DRAINAGE AREA.--8.17 mi² (20.9 km²).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
25...	1100	8.7	399	7.6	27.5	1.4	4.8	60	13	53000	25000
DEC 06...	0950	12	425	7.9	22.8	17	6.4	73	20	46000	280000
FEB 1994											
22...	1030	3.7	447	7.6	23.0	0.60	5.4	62	17	62000	7600
MAY 01...	0835	3.4	450	7.5	25.0	1.3	3.4	40	<10	21000	15000
JUN 13...	0855	2.6	450	7.5	25.0	1.5	4.6	54	19	K78000	K150000
AUG 08...	1050	3.1	479	7.4	28.0	60	2.6	32	50	470000	600000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
25...	160	42	14	26	0.9	3.0	150	1.0	16	28	0.20
DEC 06...	--	--	--	--	--	--	160	--	--	--	--
FEB 1994											
22...	--	--	--	--	--	--	180	--	--	--	--
MAY 01...	160	44	13	28	1	2.8	160	1.1	13	33	0.20
JUN 13...	--	--	--	--	--	--	170	--	--	--	--
AUG 08...	150	40	13	33	1	4.8	170	--	24	39	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
25...	35	254	5.97	13	0.40	0.160	1	200	40	<1	<1
DEC 06...	--	--	--	59	0.50	0.170	--	--	--	--	--
FEB 1994											
22...	--	--	--	11	0.50	0.200	--	--	--	--	--
MAY 01...	31	263	2.38	7	--	--	3	200	40	<1	<1
JUN 13...	--	--	--	<1	--	--	--	--	--	--	--
AUG 08...	30	286	2.37	132	4.4	0.550	--	--	--	--	--

K = non-ideal count

RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993 25...	<10	300	<1	100	<0.10	<1	<1	<10	<0.010	<1	0.07
DEC 06...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994 22...	--	--	--	--	--	--	--	--	--	--	--
MAY 01...	10	370	<1	280	<0.10	<1	<1	10	<0.010	<1	<0.02
JUN 13...	--	--	--	--	--	--	--	--	--	--	--
AUG 08...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 13...	0855	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.02	<0.010	<0.010
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
JUN 13...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUN 13...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	

RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Piñeiro near Expreso Las Américas (Luis A. Ferré), and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi² (39.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Mean daily discharge affected by sewage discharges (approximately 2.0 ft³/s (0.06 m³/s)), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	25	16	45	17	25	7.3	8.0	7.4	5.8	e8.8	46
2	13	30	17	53	15	20	9.3	8.6	6.6	105	e7.0	64
3	13	14	12	21	15	11	8.7	7.9	25	13	e6.0	17
4	184	15	57	14	37	9.5	5.6	8.4	7.5	9.7	7.3	9.4
5	73	56	18	16	14	18	88	9.6	8.3	47	12	12
6	86	15	12	17	17	23	20	33	14	26	6.4	66
7	46	14	11	e14	19	13	6.3	16	8.0	12	19	49
8	32	87	9.6	e11	12	11	6.1	26	7.3	7.6	100	19
9	30	46	11	e14	13	12	7.1	9.2	7.3	5.8	15	13
10	63	33	9.1	e12	e13	12	296	158	7.8	5.0	24	39
11	22	12	9.1	e150	e12	8.7	89	25	8.0	4.6	8.2	13
12	19	29	32	e25	e13	13	97	9.9	7.3	10	6.1	6.7
13	18	101	9.2	e15	e11	7.8	25	8.8	7.7	13	6.1	12
14	17	136	11	e13	e15	12	40	8.6	9.4	9.2	23	20
15	17	244	12	e16	e12	12	64	8.6	184	6.1	6.1	106
16	83	316	13	e25	e12	14	25	8.7	15	e18	6.4	29
17	228	187	16	e15	e11	9.4	28	8.1	66	e5.6	7.3	10
18	89	101	176	e14	e11	9.9	18	55	9.1	e8.8	94	5.4
19	67	54	16	e13	e10	10	22	9.3	7.7	e5.6	44	19
20	72	27	58	e17	e10	10	24	9.0	6.6	e8.8	30	207
21	51	18	9.8	e20	e9.8	10	21	12	6.7	e5.6	7.6	22
22	54	14	13	e35	e9.6	7.8	16	8.8	6.4	e7.0	33	32
23	25	14	8.4	e110	e9.0	7.0	12	10	6.2	e7.2	100	16
24	22	16	8.5	e25	8.3	7.9	11	11	6.3	e7.6	127	72
25	22	15	13	e15	13	8.3	11	9.3	43	e7.0	57	100
26	21	35	12	e13	11	7.6	11	9.1	27	e5.2	22	11
27	57	13	46	e23	53	8.1	55	8.8	6.1	e5.4	33	6.7
28	27	16	44	e20	12	9.2	11	37	6.3	e5.2	241	6.5
29	28	25	11	75	---	9.9	8.7	11	49	e7.0	63	5.2
30	19	17	18	14	---	12	8.6	9.7	23	e5.0	16	5.1
31	15	---	14	13	---	8.2	---	10	---	e9.0	21	---
TOTAL	1541	1725	722.7	883	414.7	357.3	1051.7	572.4	600.0	397.8	1157.3	1039.0
MEAN	49.7	57.5	23.3	28.5	14.8	11.5	35.1	18.5	20.0	12.8	37.3	34.6
MAX	228	316	176	150	53	25	296	158	184	105	241	207
MIN	13	12	8.4	11	8.3	7.0	5.6	7.9	6.1	4.6	6.0	5.1
AC-FT	3060	3420	1430	1750	823	709	2090	1140	1190	789	2300	2060
CFSM	3.27	3.78	1.53	1.87	.97	.76	2.31	1.21	1.32	.84	2.46	2.28
IN.	3.77	4.22	1.77	2.16	1.01	.87	2.57	1.40	1.47	.97	2.83	2.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1972 - 1994, BY WATER YEAR (WY)

	MEAN	68.5	78.1	54.8	42.7	35.6	37.8	66.1	45.9	38.3	45.1	52.2	59.2
MAX	134	235	168	97.4	80.2	78.5	150	97.5	78.1	97.4	84.2	150	
(WY)	1991	1993	1993	1993	1991	1972	1972	1992	1989	1993	1988	1989	
MIN	16.6	23.9	18.8	12.9	10.8	11.5	31.6	4.12	20.0	12.8	20.2	26.3	
(WY)	1992	1991	1992	1973	1992	1994	1991	1972	1994	1994	1993	1972	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1972 - 1994

ANNUAL TOTAL	21068.7	10461.9	
ANNUAL MEAN	57.7	28.7	50.0
HIGHEST ANNUAL MEAN			84.0
LOWEST ANNUAL MEAN			28.7
HIGHEST DAILY MEAN	862	Jul 11	3210
LOWEST DAILY MEAN	8.4	Dec 23	1.2
ANNUAL SEVEN-DAY MINIMUM	11	Dec 5	1.2
INSTANTANEOUS PEAK FLOW			8640
INSTANTANEOUS PEAK STAGE			20.77
ANNUAL RUNOFF (AC-FT)	41790	20750	36190
ANNUAL RUNOFF (CFSM)	3.80	1.89	3.29
ANNUAL RUNOFF (INCHES)	51.56	25.60	44.65
10 PERCENT EXCEEDS	110	66	117
50 PERCENT EXCEEDS	29	13	21
90 PERCENT EXCEEDS	13	7.0	9.5

e Estimated

RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", long 66°04'10", at bridge on Avenida Piñero at Expreso Las Americas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi² (39.9 km²).

PERIOD OF RECORD.--Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
25...	1450	8.7	432	7.3	30.5	0.80	4.3	56	21	K600000	730000
DEC											
06...	1255	12	495	7.8	27.5	0.70	6.0	75	28	86000	24000
FEB 1994											
22...	1220	9.6	517	7.6	28.0	0.60	3.8	48	56	91000	34000
MAY											
01...	1035	7.6	282	7.5	28.0	1.0	4.0	50	13	300000	62000
JUN											
13...	1050	7.3	540	7.6	30.0	1.3	3.6	47	17	K78000	K9700
AUG											
10...	1020	5.1	460	7.4	29.0	5.8	3.8	52	26	37000	7200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
25...	160	45	12	28	1	3.6	140	0.6	16	30	0.20
DEC											
06...	--	--	--	--	--	--	150	--	--	--	--
FEB 1994											
22...	--	--	--	--	--	--	170	--	--	--	--
MAY											
01...	170	47	12	32	1	3.1	170	<0.5	13	36	0.20
JUN											
13...	--	--	--	--	--	--	180	--	--	--	--
AUG											
10...	160	44	11	29	1	4.4	120	--	23	36	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
25...	30	249	5.84	8	1.7	0.420	2	100	60	<1	<1
DEC											
06...	--	--	--	12	2.3	0.450	--	--	--	--	--
FEB 1994											
22...	--	--	--	11	2.5	1.10	--	--	--	--	--
MAY											
01...	31	276	5.71	10	--	--	3	200	60	<1	<1
JUN											
13...	--	--	--	2	2.6	0.510	--	--	--	--	--
AUG											
10...	27	247	3.43	36	1.7	0.290	--	--	--	--	--

K = non-ideal count

50049100 RIO PIEDRAS AT HATO REY, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO PUERTO NUEVO BASIN

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Caño de Martín Peña, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
NOV 1993								
01...	1100	10100	7.8	31.0	12.5	4.4	57	5200
DEC								
21...	0955	14600	8.0	27.5	10.5	8.2	108	45000
MAR								
09...	1010	26800	6.7	28.0	16.9	0.9	1	44000
MAY								
09...	0945	34600	6.6	28.0	22.8	3.0	38	5900
JUL								
05...	1020	24400	8.4	30.0	14.8	0.7	10	20000
SEP								
02...	0930	35400	7.6	29.0	11.0	7.5	96	K6200

DATE	STREP- TOCOCCHI FECAL, (COLS. PER 100 ML)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1993							
01...	110	114	7	3.7	3.7	0.410	8.9
DEC							
21...	2400	136	2	1.8	1.8	0.210	7.0
MAR							
09...	14000	140	16	3.7	3.7	0.410	36
MAY							
09...	7100	110	27	3.7	3.7	0.560	16
JUL							
05...	7500	147	22	3.4	3.4	0.490	10
SEP							
02...	260	128	33	3.0	3.0	0.590	22-

K = non-ideal count

RIO PUERTO NUEVO BASIN

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constitución, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
NOV 1993								
01...	1150	38200	8.0	31.0	26.3	3.8	51	K15000
DEC								
20...	1145	41800	8.1	25.5	36.0	5.2	63	K28000
MAR 1994								
08...	0935	27900	7.5	26.0	26.0	1.0	12	430000
MAY								
06...	1000	50000	7.8	285.0	17.2	2.4	30	K180000
JUN								
30...	0915	50000	7.0	30.0	23.7	0.3	4	360000
AUG								
31...	1000	42800	7.6	30.0	36.0	4.1	53	4600

DATE	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	CARBON, ORGANIC TOTAL (MG/L AS C)
NOV 1993							
01...	K500	126	820	1.9	1.9	0.160	7.4
DEC							
20...	K400	107	26	2.3	2.3	0.290	7.3
MAR 1994							
08...	39000	150	28	1.3	1.3	0.180	9.4
MAY							
06...	K1400	140	30	2.1	2.1	0.280	11
JUN							
30...	88000	110	18	2.4	2.4	0.380	10
AUG							
31...	250	140	35	1.6	1.6	0.230	5.1

K = non-ideal count

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

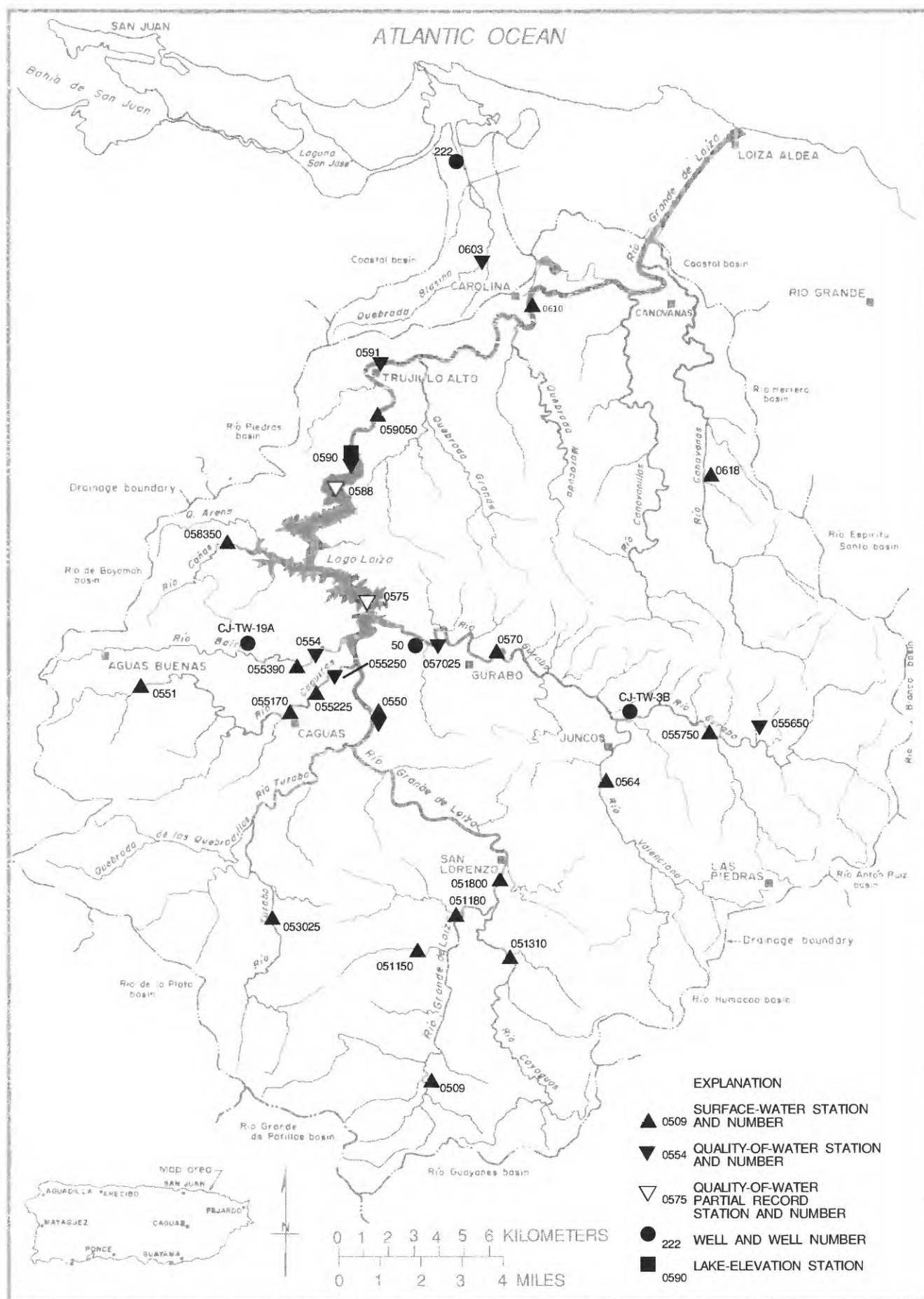


Figure 20.--Río Grande de Loíza basin.

RIO GRANDE DE LOIZA BASIN

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina plaza.

DRAINAGE AREA.--2.96 mi² (7.67 km²).

PERIOD OF RECORD.--Water years 1973 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
22...	1335	12	394	7.6	27.5	17	4.3	54	24	530000	K120000
DEC 08...	1030	11	210	7.6	24.5	2.0	5.8	69	28	480000	16000
FEB 1994											
18...	1000	13	367	7.3	24.0	1.0	5.4	63	33	3000	1200
APR 08...	1045	4.2	455	7.4	25.5	--	3.4	41	24	1700	1500
JUN 14...	0940	6.1	610	7.5	25.0	0.90	3.2	38	20	21000	21000
AUG 11...	1035	5.3	517	7.4	28.0	400	1.4	16	95	110000	23000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
22...	140	42	7.8	23	0.9	3.0	130	<0.5	14	30	0.20
DEC 08...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
18...	--	--	--	--	--	--	140	--	--	--	--
APR 08...	--	--	--	--	--	--	160	<0.5	--	--	--
JUN 14...	--	--	--	--	--	--	190	--	--	--	--
AUG 11...	180	53	11	32	1	4.8	170	--	30	69	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
22...	21	219	7.15	28	0.90	0.150	1	<100	40	<1	<1
DEC 08...	--	--	--	90	1.6	0.430	--	--	--	--	--
FEB 1994											
18...	--	--	--	24	1.1	0.320	--	--	--	--	--
APR 08...	--	--	--	--	1.3	0.280	1	<100	60	<1	<1
JUN 14...	--	--	--	<1	1.3	0.240	--	--	--	--	--
AUG 11...	18	320	4.58	376	4.0	0.700	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Rio Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--6.00 mi² (15.54 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	12	20	18	10	27	8.4	5.1	5.5	7.8	11	9.0
2	22	12	15	15	11	15	8.1	5.1	5.3	7.5	8.1	11
3	18	12	14	13	11	16	8.0	4.9	5.1	16	7.3	8.9
4	22	11	16	20	13	13	7.7	5.8	6.8	9.6	7.5	7.8
5	22	9.9	16	29	11	11	7.4	9.0	5.7	7.4	7.7	7.8
6	128	9.9	14	15	10	11	7.2	7.7	41	6.9	6.7	25
7	44	11	13	13	9.9	11	7.2	5.9	9.2	8.4	9.8	15
8	29	11	12	12	9.9	11	7.1	6.2	7.0	7.7	6.9	11
9	25	12	12	33	9.1	11	6.6	29	6.6	6.7	7.0	22
10	22	17	12	21	9.0	14	6.6	49	6.3	6.4	22	14
11	22	12	11	17	11	12	8.1	15	6.7	6.3	17	61
12	22	11	11	20	8.7	15	7.6	10	6.6	6.1	8.4	21
13	19	12	11	24	8.5	12	6.5	19	6.2	6.1	7.3	14
14	18	25	11	41	20	11	6.6	16	5.8	5.8	6.6	12
15	17	15	10	22	12	10	7.5	18	24	5.3	6.3	71
16	19	43	10	18	10	10	8.0	13	12	5.6	5.8	103
17	18	91	9.8	16	10	10	7.6	11	40	5.6	5.6	35
18	16	132	11	16	11	10	9.4	9.4	21	254	32	20
19	15	72	10	14	55	9.9	7.0	8.8	12	22	15	174
20	15	125	10	13	455	9.9	6.3	7.8	9.0	13	8.3	593
21	15	91	11	12	31	9.5	6.3	7.6	7.6	11	7.1	69
22	19	71	10	12	26	8.9	8.4	7.2	6.8	9.6	7.8	33
23	25	34	10	11	25	8.8	7.4	7.1	6.6	8.7	6.8	24
24	16	28	10	11	20	8.7	6.5	6.6	6.2	8.2	201	25
25	18	29	11	11	13	8.5	6.3	6.3	6.4	7.9	75	16
26	20	55	10	11	12	9.1	5.6	6.3	169	7.5	17	17
27	14	27	12	10	11	8.3	5.6	6.3	17	7.2	13	12
28	50	20	18	10	37	8.3	6.4	6.0	12	7.1	11	11
29	17	17	12	10	---	12	5.7	5.8	9.8	7.1	10	9.7
30	14	40	13	12	---	10	5.3	5.5	8.3	6.9	9.4	8.9
31	13	---	11	10	---	8.7	---	5.4	---	16	8.7	---
TOTAL	766	1067.8	376.8	510	880.1	350.6	212.4	325.8	491.5	511.4	573.1	1461.1
MEAN	24.7	35.6	12.2	16.5	31.4	11.3	7.08	10.5	16.4	16.5	18.5	48.7
MAX	128	132	20	41	455	27	9.4	49	169	254	201	593
MIN	13	9.9	9.8	10	8.5	8.3	5.3	4.9	5.1	5.3	5.6	7.8
AC-FT	1520	2120	747	1010	1750	695	421	646	975	1010	1140	2900
CFSM	4.12	5.93	2.03	2.74	5.24	1.88	1.18	1.75	2.73	2.75	3.08	8.12
IN.	4.75	6.62	2.34	3.16	5.46	2.17	1.32	2.02	3.05	3.17	3.55	9.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1994, BY WATER YEAR (WY)

	MEAN	40.8	46.6	23.8	18.4	17.4	12.3	12.9	33.3	37.9	36.9	29.7	36.8
MAX	123	122	55.2	56.1	38.0	33.1	27.1	77.5	122	92.3	90.0	94.3	
(WY)	1986	1988	1988	1992	1982	1989	1985	1985	1979	1993	1979	1979	
MIN	13.1	8.34	6.65	8.16	6.36	5.07	4.64	9.56	11.3	12.5	9.30	11.8	
(WY)	1990	1990	1990	1990	1979	1979	1979	1988	1985	1986	1991	1981	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1978 - 1994

ANNUAL TOTAL	12396.6	7526.6	
ANNUAL MEAN	34.0	20.6	
HIGHEST ANNUAL MEAN			28.9
LOWEST ANNUAL MEAN			49.6
HIGHEST DAILY MEAN	946	593	1250
LOWEST DAILY MEAN	5.1	4.9	3.1
ANNUAL SEVEN-DAY MINIMUM	5.9	5.4	3.6
INSTANTANEOUS PEAK FLOW		3540	11700
INSTANTANEOUS PEAK STAGE		9.77	14.78
INSTANTANEOUS LOW FLOW		4.9	2.8
ANNUAL RUNOFF (AC-FT)	24590	14930	20970
ANNUAL RUNOFF (CFSM)	5.66	3.44	4.82
ANNUAL RUNOFF (INCHES)	76.86	46.66	65.54
10 PERCENT EXCEEDS	59	30	49
50 PERCENT EXCEEDS	17	11	14
90 PERCENT EXCEEDS	7.6	6.3	6.8

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 21010005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.25 mi² (8.42 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 459 ft (140 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	1.2	e4.5	1.9	2.1	20	.87	.35	.74	2.3	1.6	1.3
2	2.7	1.3	e3.9	1.9	2.0	8.0	.82	.34	.71	1.2	1.1	2.7
3	2.2	1.5	3.2	1.8	2.3	4.1	.85	.55	.66	1.8	.82	1.5
4	2.0	1.3	9.2	1.7	2.5	3.1	.82	.68	.76	2.5	1.0	.96
5	2.2	1.3	e4.6	2.5	2.8	2.4	.90	1.0	.77	1.4	1.1	.89
6	3.7	1.4	3.1	1.8	2.6	1.9	1.0	.72	3.7	.98	1.0	6.7
7	2.7	1.4	2.7	1.4	1.8	1.4	1.2	.44	1.7	1.2	1.1	3.6
8	1.9	1.7	2.6	1.3	1.7	1.3	.98	.42	1.1	1.1	.78	2.1
9	1.5	1.8	2.5	1.6	1.4	2.3	.58	1.5	1.3	1.1	.88	2.5
10	1.4	1.5	2.2	2.9	1.5	2.0	.75	1.8	.99	.99	2.2	1.9
11	1.3	1.1	1.9	1.9	1.6	1.3	2.8	.78	1.1	.99	1.6	4.0
12	1.7	.88	1.9	1.7	1.6	17	1.5	.43	1.1	.89	1.2	2.4
13	1.2	.82	2.0	3.8	1.5	4.5	.79	.56	.65	.88	.95	1.5
14	1.0	1.1	1.9	5.2	2.7	2.8	.70	1.8	.58	.78	.84	.98
15	1.0	1.5	1.9	2.7	2.6	2.3	.72	.62	1.1	.68	.77	15
16	10	18	1.8	2.2	1.8	2.0	.80	.44	1.2	.66	.73	5.8
17	6.0	5.4	1.8	2.1	1.5	1.7	.71	.52	4.7	.79	.69	3.2
18	2.7	34	2.3	2.1	1.5	1.5	.63	.43	4.6	22	3.7	1.6
19	2.0	14	2.1	2.0	3.2	1.5	.49	.37	2.8	6.6	2.9	9.0
20	1.5	41	1.9	2.0	e60	1.4	.43	.33	1.4	3.0	1.5	e201
21	1.3	e32	2.0	2.2	4.5	1.3	.42	.33	.90	1.8	1.1	8.8
22	1.4	e19	1.9	2.0	2.7	1.2	.43	.38	.64	1.4	1.2	3.9
23	2.2	e14	1.9	1.8	11	1.2	.39	.39	.50	1.1	.92	2.8
24	1.5	e9.2	2.0	1.9	7.8	1.1	.50	.39	.43	.92	5.4	2.0
25	9.8	e15	1.8	1.8	5.3	1.0	.44	.43	.53	.84	12	1.3
26	15	e13	1.7	2.4	2.9	.99	.39	.44	18	.88	4.2	.96
27	3.5	e7.5	1.9	1.6	2.2	.90	.40	.43	3.2	.99	3.1	.87
28	2.5	e4.3	2.9	1.5	2.1	.81	.40	.47	2.8	.90	2.3	.87
29	1.8	e3.6	2.1	1.7	---	1.2	.38	.47	2.1	1.2	1.6	.90
30	1.6	e4.0	1.8	2.2	---	1.4	.36	.50	2.8	.94	1.2	.96
31	1.3	---	1.6	2.8	---	1.1	---	.88	---	2.1	1.1	---
TOTAL	94.3	253.80	79.6	66.4	137.2	94.70	22.45	19.19	63.56	64.91	60.58	291.99
MEAN	3.04	8.46	2.57	2.14	4.90	3.05	.75	.62	2.12	2.09	1.95	9.73
MAX	15	41	9.2	5.2	60	20	2.8	1.8	18	22	12	201
MIN	1.0	.82	1.6	1.3	1.4	.81	.36	.33	.43	.66	.69	.87
AC-FT	187	503	158	132	272	188	45	38	126	129	120	579
CFSM	.94	2.60	.79	.66	1.51	.94	.23	.19	.65	.64	.60	2.99
IN.	1.08	2.91	.91	.76	1.57	1.08	.26	.22	.73	.74	.69	3.34

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1984	11.0	47.8	1986	2.75	1993
1985	17.3	36.9	1985	2.49	1990
1986	7.24	30.1	1988	1.49	1990
1987	4.66	9.94	1992	1.79	1990
1988	4.09	8.21	1989	1.32	1985
1989	4.19	20.7	1989	1.64	1993
1990	2.28	4.88	1989	.75	1994
1991	8.07	31.5	1985	.62	1994
1992	5.85	21.3	1987	2.12	1994
1993	5.74	15.0	1993	2.02	1986
1994	6.03	20.2	1988	1.95	1994
1995	7.48	14.3	1985	1.36	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1984 - 1994
ANNUAL TOTAL	1954.49	1248.68	
ANNUAL MEAN	5.35	3.42	7.00
HIGHEST ANNUAL MEAN			12.3
LOWEST ANNUAL MEAN			2.50
HIGHEST DAILY MEAN	213	201	457
LOWEST DAILY MEAN	.82	.33	.33
ANNUAL SEVEN-DAY MINIMUM	1.1	.37	.37
INSTANTANEOUS PEAK FLOW		3420	7400
INSTANTANEOUS PEAK STAGE		10.88	14.58
INSTANTANEOUS LOW FLOW		.30	.30
ANNUAL RUNOFF (AC-FT)	3880	2480	5070
ANNUAL RUNOFF (CFSM)	1.65	1.05	2.15
ANNUAL RUNOFF (INCHES)	22.37	14.29	29.25
10 PERCENT EXCEEDS	10	4.9	12
50 PERCENT EXCEEDS	2.8	1.6	2.5
90 PERCENT EXCEEDS	1.3	.56	1.0

e Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1994.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (23,400 tonnes) May 17, 1985; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEARS 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 713 mg/L Sep. 20, 1994; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 2,260 tons (2,050 tonnes) Sep. 20, 1994; Minimum daily mean, <0.01 ton (<0.1 tonne) Several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	3.7	6	.06	1.2	9	.02	e4.5	8	e.09
2	2.7	6	.04	1.3	7	.03	e3.9	6	e.07
3	2.2	4	.03	1.5	4	<.01	3.2	5	.04
4	2.0	4	.03	1.3	3	.01	9.2	50	4.4
5	2.2	5	.04	1.3	4	.01	e4.6	6	e.08
6	3.7	6	.06	1.4	4	.02	3.1	5	.04
7	2.7	6	.04	1.4	4	.01	2.7	5	.04
8	1.9	5	.03	1.7	5	.02	2.6	4	.03
9	1.5	7	.04	1.8	6	.02	2.5	4	.02
10	1.4	7	.02	1.5	9	.04	2.2	4	.02
11	1.3	8	.02	1.1	14	.04	1.9	4	.02
12	1.7	6	.02	.88	18	.04	1.9	4	.02
13	1.2	4	.02	.82	18	.04	2.0	4	.02
14	1.0	5	.02	1.1	17	.05	1.9	4	.02
15	1.0	6	.01	1.5	15	.06	1.9	4	.02
16	10	75	6.6	18	131	16	1.8	4	.02
17	6.0	44	.86	5.4	21	.41	1.8	4	.02
18	2.7	6	.05	34	232	47	2.3	4	.02
19	2.0	7	.04	14	87	4.5	2.1	4	.02
20	1.5	7	.02	41	292	72	1.9	4	.02
21	1.3	12	.04	e32	197	e14	2.0	3	.02
22	1.4	18	.07	e19	53	e2.7	1.9	3	.02
23	2.2	16	.10	e14	99	e3.7	1.9	3	.02
24	1.5	12	.05	e9.2	28	e.70	2.0	3	.02
25	9.8	63	13	e15	110	e4.5	1.8	3	.01
26	15	102	12	e13	32	e1.0	1.7	3	.01
27	3.5	10	.10	e7.5	30	e.60	1.9	3	.02
28	2.5	4	.03	e4.3	28	e.36	2.9	5	.04
29	1.8	5	.02	e3.6	26	e.27	2.1	4	.02
30	1.6	6	.02	e4.0	141	e19	1.8	4	.02
31	1.3	8	.03	---	---	---	1.6	3	.02
TOTAL	94.3	---	33.51	253.80	---	187.15	79.6	---	5.25

e Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1.9	3	.02	2.1	39	.21	20	140	32
2	1.9	2	.01	2.0	7	.04	8.0	18	.61
3	1.8	1	<.01	2.3	5	.04	4.1	6	.07
4	1.7	1	<.01	2.5	2	.01	3.1	4	.03
5	2.5	1	<.01	2.8	2	.01	2.4	2	.02
6	1.8	2	.01	2.6	1	<.01	1.9	1	.01
7	1.4	3	.02	1.8	1	<.01	1.4	1	<.01
8	1.3	5	.02	1.7	1	<.01	1.3	1	<.01
9	1.6	6	.02	1.4	2	<.01	2.3	1	<.01
10	2.9	6	.05	1.5	1	<.01	2.0	2	<.01
11	1.9	4	.03	1.6	1	<.01	1.3	2	<.01
12	1.7	2	<.01	1.6	4	.02	17	100	17
13	3.8	5	.07	1.5	5	.03	4.5	6	.08
14	5.2	5	.07	2.7	6	.04	2.8	3	.02
15	2.7	4	.03	2.6	4	.02	2.3	3	.02
16	2.2	3	.02	1.8	3	.02	2.0	2	.01
17	2.1	2	.02	1.5	3	.02	1.7	1	<.01
18	2.1	3	.02	1.5	3	.02	1.5	1	<.01
19	2.0	6	.03	3.2	4	.03	1.5	2	<.01
20	2.0	10	.05	e60	432	e70	1.4	2	.01
21	2.2	14	.08	4.5	3	.04	1.3	3	.02
22	2.0	10	.05	2.7	3	.01	1.2	2	<.01
23	1.8	6	.03	11	75	5.8	1.2	1	<.01
24	1.9	3	.01	7.8	45	1.2	1.1	1	<.01
25	1.8	4	.02	5.3	3	.04	1.0	1	<.01
26	2.4	7	.04	2.9	2	.01	.99	1	<.01
27	1.6	6	.03	2.2	2	.02	.90	1	<.01
28	1.5	5	.02	2.1	2	<.01	.81	1	<.01
29	1.7	5	.03	---	---	---	1.2	1	<.01
30	2.2	4	.02	---	---	---	1.4	1	<.01
31	2.8	3	.02	---	---	---	1.1	1	<.01
TOTAL	66.4	---	0.84	137.2	---	77.63	94.70	---	49.90

e Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	.87	1	<.01	.35	1	<.01	.74	5	.01
2	.82	2	<.01	.34	1	<.01	.71	5	.01
3	.85	2	<.01	.55	2	<.01	.66	5	<.01
4	.82	2	<.01	.68	2	<.01	.76	5	.01
5	.90	2	<.01	1.0	3	.01	.77	5	.01
6	1.0	6	.02	.72	3	<.01	3.7	6	.06
7	1.2	4	.01	.44	3	<.01	1.7	11	.06
8	.98	2	<.01	.42	3	<.01	1.1	15	.04
9	.58	2	<.01	1.5	4	.01	1.3	11	.05
10	.75	1	<.01	1.8	5	.02	.99	6	.02
11	2.8	3	.03	.78	6	.01	1.1	7	.01
12	1.5	4	.02	.43	6	<.01	1.1	9	.03
13	.79	2	<.01	.56	5	<.01	.65	9	.02
14	.70	3	<.01	1.8	6	.03	.58	6	.01
15	.72	5	.01	.62	7	.02	1.1	4	.01
16	.80	4	<.01	.44	7	<.01	1.2	3	.01
17	.71	2	<.01	.52	7	.01	4.7	3	.03
18	.63	1	<.01	.43	7	<.01	4.6	3	.04
19	.49	2	<.01	.37	6	<.01	2.8	3	.02
20	.43	4	<.01	.33	6	<.01	1.4	2	<.01
21	.42	3	<.01	.33	6	<.01	.90	4	.01
22	.43	2	<.01	.38	6	<.01	.64	6	.01
23	.39	2	<.01	.39	6	<.01	.50	6	<.01
24	.50	2	<.01	.39	7	<.01	.43	5	<.01
25	.44	1	<.01	.43	8	<.01	.53	5	<.01
26	.39	1	<.01	.44	8	.01	18	132	13
27	.40	1	<.01	.43	9	.02	3.2	14	.15
28	.40	2	<.01	.47	9	.01	2.8	7	.05
29	.38	2	<.01	.47	10	.02	2.1	5	.02
30	.36	2	<.01	.50	10	.01	2.8	5	.04
31	---	---	---	.88	7	.01	---	---	---
TOTAL	22.45	---	0.09	19.19	---	0.19	63.56	---	13.73

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.3	3	.02	1.6	6	.02	1.3	4	.01
2	1.2	2	<.01	1.1	6	.02	2.7	4	.03
3	1.8	2	.01	.82	6	.02	1.5	5	.01
4	2.5	1	<.01	1.0	5	.01	.96	4	.01
5	1.4	1	<.01	1.1	4	.01	.89	3	<.01
6	.98	2	<.01	1.0	4	.01	6.7	15	.36
7	1.2	2	<.01	1.1	4	.01	3.6	12	.16
8	1.1	1	<.01	.78	3	<.01	2.1	5	.03
9	1.1	1	<.01	.88	3	<.01	2.5	4	.03
10	.99	3	.01	2.2	3	.02	1.9	4	.03
11	.99	4	.01	1.6	3	.01	4.0	6	.06
12	.89	6	.02	1.2	1	<.01	2.4	6	.05
13	.88	7	.01	.95	3	<.01	1.5	5	.03
14	.78	5	.01	.84	5	.01	.98	3	.01
15	.68	4	<.01	.77	6	.01	15	110	20
16	.66	4	<.01	.73	6	.02	5.8	17	.38
17	.79	4	.01	.69	8	.02	3.2	6	.07
18	22	75	10	3.7	14	.19	1.6	5	.02
19	6.6	5	.12	2.9	4	.02	9.0	63	10
20	3.0	4	.04	1.5	3	.02	201	713	2260
21	1.8	3	.02	1.1	4	.02	8.8	32	.89
22	1.4	2	.01	1.2	6	.02	3.9	6	.07
23	1.1	2	<.01	.92	6	.02	2.8	4	.03
24	.92	4	.01	5.4	38	2.2	2.0	7	.04
25	.84	4	.01	12	35	2.1	1.3	6	.02
26	.88	4	.01	4.2	10	.12	.96	5	.01
27	.99	4	.01	3.1	9	.07	.87	4	.01
28	.90	5	.01	2.3	5	.03	.87	2	<.01
29	1.2	14	.05	1.6	4	.02	.90	2	<.01
30	.94	7	.02	1.2	4	.02	.96	2	<.01
31	2.1	5	.03	1.1	4	.02	---	---	---
TOTAL	64.91	---	10.44	60.58	---	5.06	291.99	---	2292.36
YEAR	1248.68		2676.15						

• Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
19...	1040	17	84	3.9	97
SEP 1994					
20...	1330	111	135	40	90

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loiza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi² (9.69 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.3	1.6	4.4	1.7	1.0	13	1.2	.96	.51	1.2	.80	.47
2	e3.3	1.5	3.7	1.6	1.1	7.0	1.2	.98	.67	.85	.73	7.2
3	e3.0	1.6	2.7	1.5	1.0	2.6	1.2	.96	.55	.79	.59	3.2
4	e2.9	1.8	4.2	1.4	1.2	1.9	1.2	1.2	.54	.81	.55	1.2
5	e4.1	1.8	2.6	2.8	1.1	1.6	1.1	1.4	.57	.75	.76	.83
6	6.7	1.8	2.2	2.2	1.1	1.5	1.3	1.6	2.3	.71	.79	33
7	2.7	1.8	2.0	2.0	1.1	1.5	1.9	1.3	.88	1.1	.74	12
8	2.2	1.7	2.0	2.0	1.1	1.4	1.4	1.3	.70	1.0	.63	3.4
9	2.2	1.8	2.1	2.1	1.1	1.7	1.1	2.0	.89	.82	.53	4.3
10	2.1	1.8	2.0	2.2	1.2	1.8	1.2	2.0	.75	.77	2.8	3.5
11	2.3	1.8	1.7	1.7	1.2	1.7	1.5	1.3	.74	.73	1.2	11
12	2.8	1.8	1.9	1.7	1.1	4.6	1.4	1.1	.78	.71	.75	3.9
13	2.5	1.6	1.8	3.3	1.2	1.7	1.1	1.1	.65	.67	.64	1.8
14	2.3	1.7	1.8	3.7	1.3	1.4	1.1	1.6	.49	.63	.59	1.3
15	2.3	2.0	1.7	1.9	1.4	1.2	1.0	1.2	.61	.64	.54	53
16	16	30	1.8	1.7	1.2	1.2	1.1	1.1	.63	.67	.51	32
17	4.0	3.4	1.8	1.6	1.2	1.2	1.1	.98	1.5	.69	.45	18
18	2.3	37	2.1	1.5	1.2	1.1	1.1	.99	1.3	21	1.5	5.7
19	2.0	13	2.1	1.4	1.7	1.2	1.1	.96	.95	2.0	1.7	26
20	2.0	34	2.0	1.3	2.1	1.2	1.1	.81	.71	1.2	.98	314
21	1.8	14	2.1	1.7	1.5	1.2	1.0	.66	.59	.85	.81	99
22	1.8	7.4	2.0	1.5	1.2	1.1	1.1	.65	.54	.76	.72	10
23	1.8	6.0	1.8	1.3	4.5	1.1	.99	.63	.52	.68	.70	5.1
24	1.7	5.5	1.7	1.2	3.3	1.1	1.0	.61	.50	.65	13	3.9
25	2.6	6.8	1.6	1.2	2.1	1.1	1.0	.59	.56	.63	8.9	2.1
26	3.5	14	1.6	1.2	1.5	1.2	1.1	.57	24	.61	1.2	1.7
27	2.4	7.0	2.0	1.2	1.3	1.4	1.0	.53	1.4	.63	.94	1.4
28	2.1	5.2	1.7	1.2	1.2	1.2	1.1	.54	1.1	.60	.89	1.3
29	1.9	4.0	1.7	1.3	---	1.1	1.0	.55	.94	.62	.92	1.1
30	1.8	15	1.6	1.5	---	1.2	1.0	.54	1.9	.60	.61	.95
31	1.7	---	1.7	1.4	---	1.3	---	.53	---	.67	.49	---
TOTAL	94.1	228.4	66.1	54.0	41.2	63.5	34.69	31.24	48.77	45.04	46.96	662.35
MEAN	3.04	7.61	2.13	1.74	1.47	2.05	1.16	1.01	1.63	1.45	1.51	22.1
MAX	16	37	4.4	3.7	4.5	13	1.9	2.0	24	21	13	314
MIN	1.7	1.5	1.6	1.2	1.0	1.1	.99	.53	.49	.60	.45	.47
AC-FT	187	453	131	107	82	126	69	62	97	89	93	1310
CFSM	.81	2.04	.57	.47	.39	.55	.31	.27	.43	.39	.41	5.90
IN.	.94	2.27	.66	.54	.41	.63	.35	.31	.49	.45	.47	6.59

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

	MEAN	9.60	14.3	5.50	4.96	3.28	3.36	2.55	7.59	6.42	5.51	5.14	11.1
MAX	36.2	33.4	22.8	23.4	10.3	17.4	6.60	35.8	15.0	20.5	14.4	29.0	
(WY)	1986	1988	1988	1992	1984	1989	1985	1985	1984	1993	1988	1989	
MIN	2.31	2.72	1.17	1.16	1.23	1.15	.88	1.01	1.63	1.45	1.51	1.88	
(WY)	1987	1990	1990	1990	1990	1992	1984	1994	1994	1994	1994	1990	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1984 - 1994

ANNUAL TOTAL	2053.95	1416.35	
ANNUAL MEAN	5.63	3.88	6.57
HIGHEST ANNUAL MEAN			10.4
LOWEST ANNUAL MEAN			3.19
HIGHEST DAILY MEAN	259	Jul 11	472
LOWEST DAILY MEAN	.74	Apr 25	.29
ANNUAL SEVEN-DAY MINIMUM	.90	Apr 1	.41
INSTANTANEOUS PEAK FLOW			1830
INSTANTANEOUS PEAK STAGE			10.25
INSTANTANEOUS LOW FLOW			.42
ANNUAL RUNOFF (AC-FT)	4070	2810	4760
ANNUAL RUNOFF (CFSM)	1.50	1.04	1.76
ANNUAL RUNOFF (INCHES)	20.43	14.09	23.87
10 PERCENT EXCEEDS	8.7	4.4	10
50 PERCENT EXCEEDS	2.4	1.3	2.0
90 PERCENT EXCEEDS	1.2	.63	.95

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continue

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1984 to 1986 and water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1994.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.-- Sediment samples collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 11,100 tons (10,100 tonnes) Jan. 05, 1992; Minimum daily mean, <0.01 ton (<0.1 tonne) several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 270 mg/L Sep. 20, 1994; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 375 tons (340 tonnes) Sep. 20 1994; Minimum daily mean, <0.01 ton (<0.1 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	3.3	9	.08	1.6	3	.02	4.4	11	.15
2	3.3	9	.09	1.5	3	.02	3.7	6	.05
3	3.0	10	.07	1.6	3	.02	2.7	4	.03
4	2.9	11	.09	1.8	3	.02	4.2	9	.19
5	4.1	14	.17	1.8	3	.02	2.6	7	.05
6	6.7	13	.26	1.8	3	.02	2.2	3	.02
7	2.7	5	.04	1.8	4	.02	2.0	2	.02
8	2.2	4	.02	1.7	4	.02	2.0	2	.02
9	2.2	4	.02	1.8	4	.02	2.1	3	.02
10	2.1	4	.02	1.8	3	.02	2.0	5	.03
11	2.3	4	.03	1.8	2	.01	1.7	5	.03
12	2.8	7	.05	1.8	2	.01	1.9	4	.02
13	2.5	11	.07	1.6	3	.02	1.8	4	.02
14	2.3	8	.06	1.7	4	.02	1.8	6	.03
15	2.3	4	.03	2.0	4	.02	1.7	6	.03
16	16	36	5.8	30	198	122	1.8	5	.02
17	4.0	13	.18	3.4	9	.09	1.8	6	.03
18	2.3	10	.07	37	83	17	2.1	7	.04
19	2.0	10	.06	13	49	1.9	2.1	7	.04
20	2.0	11	.06	34	84	12	2.0	7	.04
21	1.8	11	.05	14	36	1.8	2.1	5	.03
22	1.8	8	.04	7.4	13	.27	2.0	3	.01
23	1.8	6	.04	6.0	10	.18	1.8	2	.01
24	1.7	7	.04	5.5	10	.14	1.7	3	.02
25	2.6	9	.14	6.8	16	.44	1.6	3	.02
26	3.5	9	.12	14	33	1.7	1.6	3	.02
27	2.4	5	.03	7.0	12	.23	2.0	2	.02
28	2.1	3	.02	5.2	11	.15	1.7	2	.01
29	1.9	3	.02	4.0	8	.11	1.7	2	<.01
30	1.8	3	.02	15	38	2.5	1.6	2	.01
31	1.7	3	.02	---	---	---	1.7	3	.02
TOTAL	94.1	---	7.81	228.4	---	160.79	66.1	---	1.05

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continue

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	1.7	4	.02	1.0	2	<.01	13	29	4.3
2	1.6	3	.01	1.1	2	<.01	7.0	17	.52
3	1.5	2	.01	1.0	2	<.01	2.6	3	.02
4	1.4	4	.02	1.2	2	<.01	1.9	2	.01
5	2.8	5	.03	1.1	2	<.01	1.6	2	<.01
6	2.2	5	.04	1.1	2	<.01	1.5	2	.01
7	2.0	5	.03	1.1	2	<.01	1.5	3	.02
8	2.0	4	.02	1.1	2	<.01	1.4	3	.02
9	2.1	3	.02	1.1	2	<.01	1.7	3	.02
10	2.2	4	.02	1.2	2	<.01	1.8	3	.02
11	1.7	6	.03	1.2	3	<.01	1.7	3	.02
12	1.7	11	.05	1.1	3	<.01	4.6	12	.31
13	3.3	14	.17	1.2	3	.01	1.7	4	.01
14	3.7	9	.15	1.3	2	<.01	1.4	3	.02
15	1.9	3	.01	1.4	4	.01	1.2	3	<.01
16	1.7	2	<.01	1.2	2	<.01	1.2	2	.01
17	1.6	2	<.01	1.2	2	<.01	1.2	2	<.01
18	1.5	2	.01	1.2	3	.01	1.1	2	<.01
19	1.4	3	.02	1.7	4	.02	1.2	2	<.01
20	1.3	3	.02	2.1	5	.02	1.2	2	<.01
21	1.7	3	<.01	1.5	5	.03	1.2	2	<.01
22	1.5	4	.02	1.2	5	.02	1.1	2	<.01
23	1.3	5	.02	4.5	13	.27	1.1	2	<.01
24	1.2	5	.02	3.3	23	.23	1.1	2	<.01
25	1.2	4	.02	2.1	13	.07	1.1	2	<.01
26	1.2	3	.01	1.5	10	.04	1.2	2	<.01
27	1.2	2	<.01	1.3	6	.03	1.4	2	<.01
28	1.2	3	.01	1.2	3	.01	1.2	2	<.01
29	1.3	4	.02	---	---	---	1.1	2	<.01
30	1.5	4	.02	---	---	---	1.2	2	<.01
31	1.4	3	.01	---	---	---	1.3	2	<.01
TOTAL	54.0	---	0.83	41.2	---	0.77	63.5	---	5.31

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continue

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.2	2	<.01	.96	2	<.01	.51	2	<.01
2	1.2	2	<.01	.98	3	<.01	.67	2	<.01
3	1.2	2	<.01	.96	2	<.01	.55	2	<.01
4	1.2	2	<.01	1.2	2	<.01	.54	4	<.01
5	1.1	2	<.01	1.4	2	<.01	.57	5	<.01
6	1.3	2	<.01	1.6	2	<.01	2.3	12	.09
7	1.9	2	<.01	1.3	2	<.01	.88	13	.03
8	1.4	2	<.01	1.3	2	.01	.70	12	.02
9	1.1	2	<.01	2.0	4	.04	.89	11	.02
10	1.2	2	<.01	2.0	5	.03	.75	10	.02
11	1.5	2	<.01	1.3	3	.02	.74	10	.02
12	1.4	2	<.01	1.1	3	.01	.78	10	.02
13	1.1	2	<.01	1.1	3	<.01	.65	11	.02
14	1.1	2	<.01	1.6	4	.02	.49	15	.02
15	1.0	2	<.01	1.2	5	.02	.61	17	.02
16	1.1	2	<.01	1.1	6	.02	.63	12	.02
17	1.1	2	<.01	.98	5	.02	1.5	4	.02
18	1.1	2	<.01	.99	4	.02	1.3	3	.01
19	1.1	2	<.01	.96	3	.01	.95	2	<.01
20	1.1	2	<.01	.81	2	<.01	.71	2	<.01
21	1.0	2	<.01	.66	2	<.01	.59	2	<.01
22	1.1	2	<.01	.65	4	<.01	.54	2	<.01
23	.99	2	<.01	.63	5	<.01	.52	2	<.01
24	1.0	2	<.01	.61	4	<.01	.50	2	<.01
25	1.0	2	<.01	.59	3	<.01	.56	2	<.01
26	1.1	2	<.01	.57	2	<.01	24	59	7.6
27	1.0	2	<.01	.53	2	<.01	1.4	11	.04
28	1.1	2	<.01	.54	2	<.01	1.1	13	.03
29	1.0	2	<.01	.55	2	<.01	.94	16	.04
30	1.0	2	<.01	.54	2	<.01	1.9	22	.14
31	---	---	---	.53	2	<.01	---	---	---
TOTAL	34.69	---	0.01	31.24	---	0.22	48.77	---	8.18

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR-Continue

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	1.2	22	.08	.80	5	.02	.47	6	<.01
2	.85	19	.04	.73	5	.01	7.2	20	.81
3	.79	16	.04	.59	5	<.01	3.2	21	.19
4	.81	14	.03	.55	7	.01	1.2	20	.07
5	.75	11	.02	.76	8	.02	.83	20	.04
6	.71	10	.02	.79	7	.02	33	72	9.1
7	1.1	10	.03	.74	5	.01	12	26	1.0
8	1.0	10	.02	.63	4	<.01	3.4	20	.19
9	.82	10	.02	.53	4	<.01	4.3	16	.26
10	.77	8	.02	2.8	8	.12	3.5	9	.18
11	.73	7	.02	1.2	10	.04	11	29	1.2
12	.71	7	.02	.75	11	.02	3.9	11	.15
13	.67	6	.02	.64	8	.02	1.8	5	.02
14	.63	5	.01	.59	6	.01	1.3	5	.02
15	.64	4	<.01	.54	4	<.01	53	104	32
16	.67	3	<.01	.51	4	<.01	32	69	6.7
17	.69	3	<.01	.45	4	<.01	18	46	2.5
18	21	52	6.2	1.5	5	.02	5.7	20	.37
19	2.0	13	.09	1.7	4	.02	26	52	18
20	1.2	8	.03	.98	2	<.01	314	270	375
21	.85	6	.02	.81	3	<.01	99	36	11
22	.76	6	.02	.72	3	<.01	10	8	.30
23	.68	8	.02	.70	3	<.01	5.1	4	.06
24	.65	12	.02	13	30	2.6	3.9	4	.04
25	.63	13	.02	8.9	25	1.1	2.1	4	.02
26	.61	8	.01	1.2	7	.03	1.7	4	.02
27	.63	4	<.01	.94	5	.02	1.4	4	.02
28	.60	5	.01	.89	4	.02	1.3	4	.02
29	.62	7	.02	.92	4	.02	1.1	5	.02
30	.60	7	.02	.61	5	<.01	.95	4	.01
31	.67	6	.02	.49	7	<.01	---	---	---
TOTAL	45.04	---	6.89	46.96	---	4.13	662.35	---	459.31
YEAR	1416.35		655.30						

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
16...	0400	156	2210	931	91
JUL 1994					
18...	1320	5.9	206	3.3	97
SEP					
20...	1215	385	3060	3180	99
20...	1250	272	794	583	83
20...	1820	291	84	66	88

RIO GRANDE DE LOIZA BASIN

50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION---Lat 18°09'13", long 65°57'20", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA---10.2 mi² (26.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD---October 1977 to current year.

GAGE---Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to Oct. 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS---Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about one hundred feet downstream from the low water control. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	78	22	49	34	21	28	15	12	9.9	12	13	9.8
2	42	23	33	34	19	26	14	12	9.3	12	12	13
3	33	23	30	31	19	25	14	12	9.2	15	11	11
4	32	21	31	26	20	23	14	12	9.8	14	12	9.7
5	36	21	39	30	20	22	14	13	9.4	11	13	9.7
6	136	22	42	27	22	22	13	14	12	11	11	16
7	75	23	30	25	e21	21	13	12	10	12	14	15
8	40	28	29	26	e21	22	13	12	8.8	12	12	12
9	35	26	31	37	e21	22	13	26	8.8	11	12	13
10	32	36	31	48	e20	24	13	29	8.5	10	13	13
11	32	29	28	34	e21	22	14	22	8.8	9.9	14	14
12	35	24	28	28	e21	26	13	19	8.9	9.5	11	12
13	30	25	28	52	e20	21	12	26	8.5	9.3	9.9	11
14	29	37	28	68	e23	20	12	33	8.5	9.2	9.5	11
15	29	33	28	30	e25	19	13	22	9.4	9.1	9.4	34
16	43	97	29	30	e20	19	14	19	11	8.9	8.9	25
17	41	95	26	27	e20	19	14	18	14	9.0	8.7	20
18	30	113	28	28	e24	18	15	16	12	138	16	13
19	27	111	25	25	e120	18	13	15	10	19	16	24
20	27	247	24	24	288	18	12	15	8.9	15	11	921
21	26	157	25	25	e33	17	12	14	8.4	13	9.7	60
22	27	78	25	24	e22	17	13	13	8.1	12	10	39
23	36	45	24	24	e50	17	13	13	8.1	11	9.6	33
24	28	48	25	26	e35	17	13	12	7.9	11	60	30
25	33	38	26	25	e28	17	13	12	8.3	10	63	26
26	80	78	25	27	e25	17	13	12	35	10	14	24
27	29	44	29	23	e25	16	12	11	16	10	12	22
28	97	33	41	24	28	16	12	11	14	9.9	11	20
29	47	30	30	25	---	17	12	11	13	10	10	18
30	26	80	31	23	---	17	12	10	12	9.8	9.9	17
31	23	---	26	22	---	15	---	10	---	13	9.7	---
TOTAL	1314	1687	924	932	1032	618	393	488	326.5	476.6	456.3	1496.2
MEAN	42.4	56.2	29.8	30.1	36.9	19.9	13.1	15.7	10.9	15.4	14.7	49.9
MAX	136	247	49	68	288	28	15	33	35	138	63	921
MIN	23	21	24	22	19	15	12	10	7.9	8.9	8.7	9.7
AC-FT	2610	3350	1830	1850	2050	1230	780	968	648	945	905	2970
CFSM	4.16	5.51	2.92	2.95	3.61	1.95	1.28	1.54	1.07	1.51	1.44	4.89
IN.	4.79	6.15	3.37	3.40	3.76	2.25	1.43	1.78	1.19	1.74	1.66	5.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1994, BY WATER YEAR (WY)

	MEAN	62.9	73.3	46.0	30.0	27.3	21.8	20.4	48.1	47.1	44.0	45.5	55.3
MAX	176	196	163	50.0	67.5	45.4	46.0	155	140	118	202	216	
(WY)	1986	1988	1988	1993	1984	1989	1985	1985	1979	1979	1979	1979	
MIN	14.4	19.2	12.5	14.6	11.0	11.3	10.7	9.68	10.9	15.4	14.5	16.9	
(WY)	1992	1982	1992	1990	1992	1992	1980	1990	1994	1994	1991	1980	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1977 - 1994
ANNUAL TOTAL	17322	10143.6	
ANNUAL MEAN	47.5	27.8	43.5
HIGHEST ANNUAL MEAN			89.7
LOWEST ANNUAL MEAN			18.6
HIGHEST DAILY MEAN	1130	921	2900
LOWEST DAILY MEAN	13	7.9	7.1
ANNUAL SEVEN-DAY MINIMUM	14	8.5	8.5
INSTANTANEOUS PEAK FLOW		8150	13200
INSTANTANEOUS PEAK STAGE		19.85	9.44
INSTANTANEOUS LOW FLOW		7.7	7.1
ANNUAL RUNOFF (AC-FT)	34360	20120	31530
ANNUAL RUNOFF (CFSM)	4.65	2.72	4.27
ANNUAL RUNOFF (INCHES)	63.17	36.99	57.98
10 PERCENT EXCEEDS	80	39	67
50 PERCENT EXCEEDS	29	20	24
90 PERCENT EXCEEDS	16	9.9	12

e Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09", long 65°57'42", Hydrologic Unit 21010005, at upstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi² (64.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	53	e107	54	49	e120	33	19	17	43	44	21
2	100	52	e94	59	50	e150	31	19	e17	33	29	52
3	87	51	85	50	51	e74	30	19	e15	48	22	40
4	83	49	103	47	54	e62	31	23	e15	76	20	26
5	86	46	100	71	53	e52	29	28	15	40	30	25
6	190	49	101	56	53	e48	30	46	66	34	23	84
7	127	49	82	58	46	e45	33	29	31	35	26	81
8	89	54	75	57	46	48	33	29	18	37	27	39
9	81	58	74	72	43	50	29	76	18	30	22	51
10	74	69	70	106	41	59	30	121	17	27	43	44
11	71	59	69	80	45	47	33	60	17	23	50	100
12	90	49	67	72	44	104	39	42	20	19	30	59
13	67	49	65	e84	43	56	30	56	19	18	23	37
14	66	67	64	e170	61	41	28	78	15	16	20	31
15	64	65	62	e86	66	44	29	47	25	16	18	183
16	109	179	62	e78	43	40	33	43	50	16	17	178
17	95	145	59	e70	45	40	33	36	68	16	14	126
18	68	243	65	e70	48	37	35	27	83	343	65	61
19	63	235	61	e66	94	36	30	25	49	102	68	97
20	61	297	58	e60	e1000	37	27	21	34	47	31	1870
21	61	e256	59	59	e180	36	27	22	29	40	23	238
22	61	e190	59	58	e86	34	25	22	28	34	20	134
23	84	e150	58	55	e160	35	27	23	25	28	21	104
24	68	e130	56	55	e170	34	25	19	24	26	106	103
25	72	e140	56	54	e100	33	26	22	23	24	219	78
26	144	e228	51	61	e68	36	23	20	284	23	57	69
27	67	132	51	52	e60	34	22	19	90	23	41	58
28	108	104	79	56	e54	33	23	e18	58	23	34	52
29	76	92	60	55	---	40	24	17	53	22	30	47
30	59	e202	59	57	---	47	20	e16	46	21	25	44
31	57	---	49	55	---	36	---	e17	---	29	21	---
TOTAL	2667	3542	2160	2083	2853	1588	868	1059	1269	1312	1219	4132
MEAN	86.0	118	69.7	67.2	102	51.2	28.9	34.2	42.3	42.3	39.3	138
MAX	190	297	107	170	1000	150	39	121	284	343	219	1870
MIN	57	46	49	47	41	33	20	16	15	16	14	21
AC-FT	5290	7030	4280	4130	5660	3150	1720	2100	2520	2600	2420	8200
CFSM	3.44	4.72	2.79	2.69	4.08	2.05	1.16	1.37	1.69	1.69	1.57	5.51
IN.	3.97	5.27	3.21	3.10	4.25	2.36	1.29	1.58	1.89	1.95	1.81	6.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994
MEAN	128	144	87.4	109	61.1
MAX	266	222	110	192	102
(WY)	1991	1992	1993	1994	1994
MIN	77.6	113	69.7	62.9	21.0
(WY)	1993	1991	1994	1991	1992

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	37064	24752	
ANNUAL MEAN	102	67.8	97.2
HIGHEST ANNUAL MEAN			134
LOWEST ANNUAL MEAN			67.8
HIGHEST DAILY MEAN	1890	Jul 11	3380
LOWEST DAILY MEAN	24	Apr 7	6.3
ANNUAL SEVEN-DAY MINIMUM	27	Apr 1	7.4
INSTANTANEOUS PEAK FLOW		15100	28200
INSTANTANEOUS PEAK STAGE		21.81	27.36
ANNUAL RUNOFF (AC-FT)	73520	49100	70430
ANNUAL RUNOFF (CFSM)	4.06	2.71	3.89
ANNUAL RUNOFF (INCHES)	55.15	36.83	52.84
10 PERCENT EXCEEDS	184	107	157
50 PERCENT EXCEEDS	72	50	56
90 PERCENT EXCEEDS	40	21	22

e Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,340 mg/L Sept. 20, 1994; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 46,800 tons (42,400 tonnes) Jan. 05, 1992; Minimum daily mean, 0.20 ton (0.18 tonne) May 05, 1992.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,340 mg/L Sep. 20, 1994; Minimum daily mean, 6 mg/L Oct. 11, 1993.

SEDIMENT LOADS: Maximum daily mean, 36,300 tons (32,900 tonnes) Sep. 20, 1994; Minimum daily mean, 0.45 ton (0.41 tonne) Jul. 25, 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	139	125	51	53	72	10	●107	59	●22
2	100	60	16	52	79	11	●94	49	●12
3	87	57	13	51	84	12	85	46	11
4	83	57	13	49	80	11	103	77	25
5	86	57	13	46	70	8.6	100	70	20
6	190	291	163	49	55	7.2	101	33	9.2
7	127	111	41	49	40	5.3	82	26	5.6
8	89	45	11	54	26	3.9	75	16	3.1
9	81	29	6.2	58	33	5.1	74	27	5.4
10	74	16	3.1	69	40	7.5	70	38	7.3
11	71	6	1.2	59	48	7.6	69	49	9.2
12	90	53	15	49	58	7.8	67	59	11
13	67	11	2.0	49	72	9.8	65	67	12
14	66	10	1.8	67	87	16	64	60	10
15	64	10	1.7	65	109	19	62	52	8.6
16	109	67	36	179	242	132	62	43	7.1
17	95	73	22	145	179	91	59	35	5.7
18	68	16	3.0	243	256	205	65	33	5.7
19	63	10	1.7	235	164	107	61	26	4.3
20	61	14	2.3	297	356	366	58	23	3.5
21	61	74	13	●256	304	●229	59	35	5.5
22	61	62	10	●190	155	●79	59	48	7.5
23	84	49	11	●150	39	●16	58	50	8.0
24	68	36	6.7	●130	18	●6.3	56	49	7.3
25	72	45	15	●140	18	●6.8	56	41	6.2
26	144	154	78	●228	186	●112	51	33	4.5
27	67	31	5.7	132	125	45	51	27	3.7
28	108	92	45	104	70	20	79	52	12
29	76	62	14	92	48	12	60	23	3.7
30	59	56	9.0	●202	149	●99	59	40	6.4
31	57	65	10	---	---	---	49	56	7.4
TOTAL	2667	---	634.4	3542	---	1667.9	2160	---	269.9

● Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	54	45	6.2	49	33	4.5	120	108	35
2	59	29	4.6	50	38	5.1	150	92	37
3	50	12	1.7	51	48	6.6	74	77	15
4	47	12	1.6	54	85	13	62	62	10
5	71	92	19	53	75	11	52	47	6.6
6	56	77	11	53	50	7.3	48	33	4.2
7	58	61	9.5	46	34	4.2	45	20	2.4
8	57	40	6.1	46	35	4.3	48	23	3.0
9	72	87	20	43	38	4.4	50	33	4.5
10	106	102	30	41	47	5.3	59	46	7.4
11	80	59	13	45	66	7.9	47	57	7.3
12	72	35	6.9	44	51	6.1	104	107	44
13	84	34	7.8	43	27	3.1	56	34	5.6
14	170	35	16	61	29	6.8	41	10	1.2
15	86	30	7.0	66	52	10	44	31	3.7
16	78	21	4.4	43	31	3.7	40	62	6.7
17	70	18	3.3	45	31	3.8	40	62	6.5
18	70	27	5.1	48	33	4.2	37	59	5.8
19	66	33	5.8	94	102	36	36	51	4.9
20	60	28	4.7	1000	977	2450	37	42	4.9
21	59	24	3.8	180	115	56	36	34	3.4
22	58	20	3.1	86	93	21	34	32	3.0
23	55	18	2.7	160	118	51	35	36	3.5
24	55	16	2.4	170	86	39	34	58	5.5
25	54	19	2.8	100	74	20	33	79	7.0
26	61	24	4.0	68	90	17	36	77	7.3
27	52	30	4.2	60	117	19	34	71	7.2
28	56	35	5.3	54	122	18	33	61	5.4
29	55	33	5.1	---	---	---	40	75	8.2
30	57	32	4.7	---	---	---	47	90	12
31	55	33	4.9	---	---	---	36	60	6.1
TOTAL	2083	---	226.7	2853	---	2838.3	1588	---	284.3

• Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	33	29	2.7	19	92	4.7	17	177	8.3
2	31	19	1.6	19	94	4.9	●17	164	●7.6
3	30	19	1.5	19	90	4.8	●15	140	●5.8
4	31	19	1.7	23	86	5.4	●15	113	●4.6
5	29	48	3.9	28	82	6.1	15	79	3.2
6	30	102	8.5	46	75	9.4	66	681	135
7	33	88	7.6	29	65	5.4	31	112	11
8	33	69	6.1	29	55	4.3	18	51	2.5
9	29	68	5.4	76	476	116	18	51	2.5
10	30	66	5.4	121	102	36	17	56	2.5
11	33	314	26	60	116	19	17	57	2.6
12	39	102	9.9	42	100	11	20	58	3.1
13	30	157	13	56	85	13	19	62	3.1
14	28	149	12	78	74	16	15	76	3.1
15	29	126	10	47	68	9.3	25	100	6.9
16	33	109	9.8	43	66	7.5	50	87	12
17	33	95	8.4	36	72	7.1	68	75	13
18	35	82	7.5	27	84	5.9	83	60	14
19	30	97	8.1	25	113	7.8	49	39	5.2
20	27	113	8.6	21	184	12	34	24	2.3
21	27	110	8.4	22	152	9.5	29	27	2.1
22	25	109	7.5	22	117	7.2	28	23	1.7
23	27	122	9.1	23	94	5.9	25	23	1.6
24	25	136	9.5	19	104	5.3	24	22	1.4
25	26	147	9.9	22	151	8.8	23	22	1.3
26	23	131	8.3	20	155	8.6	284	418	641
27	22	117	7.0	19	151	7.9	90	102	27
28	23	109	6.9	●18	150	●7.4	58	27	4.2
29	24	95	6.3	17	160	7.4	53	21	3.0
30	20	91	5.0	●16	199	●8.7	46	23	2.9
31	---	---	---	●17	185	●8.4	---	---	---
TOTAL	868	---	235.6	1059	---	390.7	1269	---	934.5

● Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	43	28	3.3	44	9	1.0	21	14	.80
2	33	31	2.8	29	9	.72	52	47	7.7
3	48	37	6.3	22	9	.56	40	28	3.3
4	76	39	9.4	20	21	1.1	26	16	1.1
5	40	25	2.7	30	62	5.1	25	16	1.0
6	34	23	2.1	23	36	2.4	84	72	20
7	35	19	1.8	26	25	1.7	81	70	18
8	37	13	1.3	27	13	1.0	39	26	2.8
9	30	11	.93	22	29	1.7	51	34	6.7
10	27	10	.69	43	65	9.3	44	36	4.4
11	23	9	.55	50	94	13	100	89	35
12	19	16	.85	30	88	7.3	59	42	7.2
13	18	22	1.1	23	88	5.7	37	26	2.6
14	16	20	.84	20	87	4.8	31	19	1.7
15	16	16	.68	18	85	4.2	183	197	159
16	16	14	.59	17	76	3.4	178	205	122
17	16	12	.50	14	45	1.8	126	118	48
18	343	630	1840	65	70	20	61	38	6.5
19	102	278	91	68	44	9.5	97	53	54
20	47	26	3.4	31	26	2.3	1870	2340	36300
21	40	14	1.5	23	19	1.2	238	598	401
22	34	9	.79	20	12	.68	134	205	78
23	28	8	.62	21	13	.70	104	15	4.4
24	26	7	.53	106	131	204	103	9	2.4
25	24	7	.45	219	259	228	78	8	1.8
26	23	10	.59	57	36	6.0	69	8	1.5
27	23	12	.76	41	18	2.1	58	8	1.3
28	23	12	.71	34	11	1.0	52	8	1.1
29	22	11	.65	30	7	.53	47	12	1.5
30	21	10	.55	25	9	.60	44	17	2.0
31	29	9	.71	21	11	.64	---	---	---
TOTAL	1312	---	1978.69	1219	---	542.03	4132	---	37296.80
YEAR	24752		47299.82						

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
AUG 1994 26...	1100	44	959	114	--	81	88

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
AUG 1994 26...	91	93	99	99.7	99.9	100	100

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
06...	1000	224	752	454	97
NOV					
19...	1000	268	153	111	95
MAY 1994					
13...	1000	37	1180	118	99
JUN					
06...	0940	40	1260	136	98
JUL					
18...	1300	458	1250	1540	94
SEP					
22...	0930	121	251	82	98

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.2 mi (1.9 km) south of Villa Borinquen, 8.1 mi (13.0 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--7.14 mi² (18.49 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	7.5	18	10	7.3	38	7.0	5.7	5.1	6.8	5.1	4.1
2	13	7.2	14	9.2	7.9	23	6.9	5.5	5.0	5.5	4.2	6.2
3	11	6.9	13	12	8.0	15	6.7	5.3	5.0	19	4.1	5.4
4	11	6.9	21	13	8.2	12	7.2	5.8	4.8	15	4.5	4.3
5	11	6.5	18	16	8.1	11	6.7	7.6	4.8	7.5	4.6	4.3
6	18	6.3	15	10	7.6	10	7.4	6.7	17	6.7	4.3	e27
7	13	6.3	13	8.5	7.5	9.8	9.2	5.4	5.5	6.2	4.2	e14
8	10	8.0	12	7.8	7.0	9.5	8.8	5.1	4.5	5.9	4.2	7.7
9	9.1	8.0	11	9.9	6.5	9.5	7.2	12	4.5	5.1	4.1	e6.8
10	8.6	8.0	11	18	6.7	11	12	14	4.3	5.0	5.1	e6.8
11	11	7.6	9.8	12	7.0	8.9	13	7.7	4.4	5.1	4.9	e36
12	20	6.8	10	11	6.5	29	7.4	6.1	4.3	4.9	3.9	11
13	9.1	7.2	9.8	14	6.4	12	6.6	5.5	4.4	4.9	3.7	7.3
14	8.3	7.3	9.8	28	12	10	7.4	6.1	4.3	4.9	3.8	6.0
15	8.1	8.0	9.4	12	8.5	9.1	7.1	7.5	6.7	4.9	3.8	e81
16	10	e42	9.0	11	6.8	8.9	6.5	6.2	5.7	4.6	3.5	e64
17	9.6	e21	9.0	10	6.6	8.7	7.1	5.2	16	e5.4	3.3	e22
18	8.3	e87	11	10	6.9	8.4	6.7	5.1	12	86	e11	12
19	7.9	e24	8.7	9.0	8.7	8.0	6.2	5.1	8.4	e11	e8.6	28
20	7.8	e112	7.8	9.0	131	7.9	6.2	5.3	5.3	7.4	3.7	273
21	7.5	64	7.5	8.4	19	7.7	5.8	5.3	4.3	6.7	3.6	e34
22	9.3	30	7.2	7.5	14	7.5	6.4	5.1	4.4	5.7	4.3	19
23	13	21	7.1	7.5	78	7.5	5.8	5.3	4.5	5.2	3.9	e16
24	9.0	24	6.8	7.4	30	7.5	5.8	5.1	4.3	4.6	36	e18
25	9.0	18	7.1	7.2	16	7.1	5.8	5.1	4.3	4.1	43	e16
26	9.9	34	6.8	8.5	13	8.5	5.9	5.1	97	4.1	7.6	e12
27	7.9	21	7.1	7.2	11	7.7	5.6	5.1	10	4.2	5.4	e11
28	7.5	16	12	7.1	11	7.4	5.7	5.1	11	4.2	4.6	11
29	8.0	13	9.4	6.6	---	8.2	5.7	5.0	9.4	4.2	5.1	e10
30	7.8	34	8.6	6.6	---	8.8	5.7	5.1	7.7	4.2	4.3	9.0
31	7.7	---	7.4	7.8	---	7.7	---	5.1	---	4.7	4.1	---
TOTAL	318.4	669.5	327.3	322.2	467.2	345.3	211.5	189.3	288.9	273.7	216.5	782.9
MEAN	10.3	22.3	10.6	10.4	16.7	11.1	7.05	6.11	9.63	8.83	6.98	26.1
MAX	20	112	21	28	131	38	13	14	97	86	43	273
MIN	7.5	6.3	6.8	6.6	6.4	7.1	5.6	5.0	4.3	4.1	3.3	4.1
AC-FT	632	1330	649	639	927	685	420	375	573	543	429	1550
CFSM	1.44	3.13	1.48	1.46	2.34	1.56	.99	.86	1.35	1.24	.98	3.65
IN.	1.66	3.49	1.71	1.68	2.43	1.80	1.10	.99	1.51	1.43	1.13	4.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	MEAN	20.0	24.4	15.9	19.5	13.4	10.1	7.98	17.6	24.1	23.8	16.9	21.0
MAX	48.2	37.9	23.1	47.5	18.1	11.6	10.7	31.9	48.9	54.6	22.8	28.1	
(WY)	1991	1992	1991	1992	1991	1991	1993	1993	1992	1993	1993	1992	
MIN	10.3	18.7	10.6	7.85	8.93	7.35	6.18	6.11	9.59	8.83	6.98	14.1	
(WY)	1994	1991	1994	1990	1990	1993	1990	1994	1991	1994	1994	1990	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1990 - 1994
ANNUAL TOTAL	7417.2	4412.7	
ANNUAL MEAN	20.3	12.1	18.7
HIGHEST ANNUAL MEAN			24.0
LOWEST ANNUAL MEAN			12.1
HIGHEST DAILY MEAN	510	273	605
LOWEST DAILY MEAN	5.6	3.3	3.3
ANNUAL SEVEN-DAY MINIMUM	5.8	3.8	3.8
INSTANTANEOUS PEAK FLOW		1120	3590
INSTANTANEOUS PEAK STAGE		11.01	14.37
INSTANTANEOUS LOW FLOW		3.3	3.3
ANNUAL RUNOFF (AC-FT)	14710	8750	13520
ANNUAL RUNOFF (CFSM)	2.85	1.69	2.61
ANNUAL RUNOFF (INCHES)	38.64	22.99	35.52
10 PERCENT EXCEEDS	33	18	29
50 PERCENT EXCEEDS	11	7.6	9.9
90 PERCENT EXCEEDS	6.8	4.5	5.6

e Estimated

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: January 1990 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1030 mg/L Jul. 11, 1994; Minimum daily mean, 1 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) Jan. 05, 1992; Minimum daily mean, 0.01 ton (0.01 tonne) Several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 649 mg/L Sep. 20, 1994; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 844 tons (766 tonnes) Sep. 20, 1994; Minimum daily mean, 0.02 ton (0.02 tonne) Several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	17	27	1.1	7.5	18	.35	18	23	1.2
2	13	28	.93	7.2	17	.34	14	14	.52
3	11	10	.28	6.9	17	.32	13	9	.31
4	11	10	.28	6.9	15	.28	21	30	2.7
5	11	10	.30	6.5	13	.23	18	44	2.1
6	18	9	.45	6.3	12	.19	15	36	1.4
7	13	8	.29	6.3	10	.17	13	26	.91
8	10	8	.22	8.0	9	.21	12	17	.53
9	9.1	10	.23	8.0	11	.24	11	45	1.3
10	8.6	10	.23	8.0	12	.24	11	19	.57
11	11	15	1.3	7.6	14	.27	9.8	28	.72
12	20	42	4.9	6.8	17	.29	10	27	.71
13	9.1	28	.69	7.2	19	.33	9.8	16	.43
14	8.3	29	.63	7.3	20	.37	9.8	13	.34
15	8.1	31	.63	8.0	20	.43	9.4	11	.27
16	10	30	.81	e42	85	e23	9.0	10	.23
17	9.6	26	.68	e21	33	e3.1	9.0	10	.24
18	8.3	41	.92	e87	228	e115	11	11	.33
19	7.9	12	.26	e24	31	e2.0	8.7	14	.30
20	7.8	12	.24	e112	289	e223	7.8	16	.33
21	7.5	12	.24	64	139	37	7.5	16	.34
22	9.3	12	.28	30	46	3.8	7.2	16	.32
23	13	11	.37	21	40	2.4	7.1	17	.32
24	9.0	8	.21	24	43	3.1	6.8	17	.31
25	9.0	8	.20	18	38	1.9	7.1	16	.30
26	9.9	10	.28	34	57	6.2	6.8	16	.29
27	7.9	13	.27	21	48	2.9	7.1	15	.29
28	7.5	16	.31	16	51	2.2	12	13	.47
29	8.0	17	.35	13	54	2.0	9.4	14	.33
30	7.8	18	.37	34	67	7.8	8.6	18	.40
31	7.7	18	.36	---	---	---	7.4	21	.42
TOTAL	318.4	---	18.61	669.5	---	439.66	327.3	---	19.23

• Estimated

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	10	22	.61	7.3	25	.46	38	84	33
2	9.2	19	.50	7.9	15	.30	23	35	3.1
3	12	14	.42	8.0	7	.16	15	10	.38
4	13	12	.48	8.2	6	.14	12	11	.32
5	16	18	1.3	8.1	11	.24	11	11	.31
6	10	11	.30	7.6	52	1.1	10	11	.30
7	8.5	8	.18	7.5	23	.44	9.8	11	.30
8	7.8	7	.16	7.0	17	.31	9.5	13	.33
9	9.9	10	.33	6.5	17	.30	9.5	13	.34
10	18	46	2.5	6.7	18	.33	11	10	.27
11	12	23	.67	7.0	17	.31	8.9	8	.20
12	11	11	.31	6.5	17	.27	29	53	11
13	14	48	2.2	6.4	16	.26	12	13	.43
14	28	41	4.1	12	22	.90	10	10	.25
15	12	13	.44	8.5	11	.27	9.1	10	.24
16	11	11	.34	6.8	10	.18	8.9	10	.24
17	10	10	.28	6.6	11	.18	8.7	48	1.1
18	10	9	.25	6.9	11	.19	8.4	32	.72
19	9.0	7	.17	8.7	11	.28	8.0	20	.42
20	9.0	6	.14	131	354	266	7.9	20	.41
21	8.4	6	.13	19	20	1.3	7.7	20	.40
22	7.5	7	.14	14	12	.45	7.5	21	.41
23	7.5	9	.18	78	220	126	7.5	21	.42
24	7.4	10	.20	30	51	5.2	7.5	21	.40
25	7.2	11	.21	16	16	.69	7.1	15	.28
26	8.5	12	.28	13	9	.30	8.5	10	.22
27	7.2	12	.23	11	6	.19	7.7	9	.19
28	7.1	12	.22	11	10	.27	7.4	11	.20
29	6.6	15	.26	---	---	---	8.2	12	.25
30	6.6	23	.41	---	---	---	8.8	13	.29
31	7.8	29	.58	---	---	---	7.7	13	.26
TOTAL	322.2	---	18.52	467.2	---	407.02	345.3	---	56.98

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	7.0	14	.25	5.7	14	.20	5.1	9	.12
2	6.9	13	.23	5.5	15	.22	5.0	7	.10
3	6.7	11	.19	5.3	15	.22	5.0	6	.08
4	7.2	9	.16	5.8	15	.22	4.8	6	.08
5	6.7	8	.14	7.6	13	.26	4.8	7	.10
6	7.4	7	.15	6.7	11	.22	17	25	2.3
7	9.2	6	.15	5.4	10	.14	5.5	8	.14
8	8.8	6	.15	5.1	9	.14	4.5	6	.08
9	7.2	8	.16	12	19	.82	4.5	6	.07
10	12	22	.87	14	21	.92	4.3	9	.10
11	13	11	.43	7.7	8	.19	4.4	14	.16
12	7.4	30	.54	6.1	4	.07	4.3	18	.22
13	6.6	65	1.2	5.5	7	.11	4.4	21	.24
14	7.4	78	1.5	6.1	10	.15	4.3	18	.20
15	7.1	73	1.4	7.5	12	.24	6.7	12	.20
16	6.5	70	1.2	6.2	14	.23	5.7	12	.20
17	7.1	64	1.1	5.2	18	.25	16	23	1.6
18	6.7	51	.87	5.1	21	.29	12	20	.85
19	6.2	33	.54	5.1	24	.32	8.4	12	.27
20	6.2	18	.29	5.3	24	.33	5.3	8	.13
21	5.8	13	.20	5.3	20	.28	4.3	8	.09
22	6.4	16	.25	5.1	16	.22	4.4	6	.07
23	5.8	18	.28	5.3	12	.17	4.5	5	.06
24	5.8	16	.25	5.1	10	.14	4.3	5	.06
25	5.8	12	.19	5.1	10	.14	4.3	5	.06
26	5.9	8	.13	5.1	9	.13	97	275	217
27	5.6	8	.12	5.1	8	.12	10	14	.43
28	5.7	10	.15	5.1	7	.10	11	10	.30
29	5.7	11	.17	5.0	6	.08	9.4	10	.26
30	5.7	12	.18	5.1	7	.09	7.7	10	.19
31	---	---	---	5.1	8	.11	---	---	---
TOTAL	211.5	---	13.44	189.3	---	7.12	288.9	---	225.76

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	6.8	7	.15	5.1	7	.11	4.1	9	.10
2	5.5	5	.08	4.2	7	.08	6.2	6	.10
3	19	29	3.2	4.1	6	.07	5.4	5	.08
4	15	23	1.1	4.5	7	.09	4.3	5	.06
5	7.5	18	.36	4.6	5	.08	4.3	5	.06
6	6.7	22	.37	4.3	5	.06	e27	40	e4.7
7	6.2	23	.38	4.2	4	.05	e14	17	e.96
8	5.9	22	.33	4.2	2	.03	7.7	6	.13
9	5.1	19	.25	4.1	2	.02	e6.8	5	e.08
10	5.0	15	.20	5.1	2	.02	e6.8	6	e.11
11	5.1	12	.16	4.9	2	.03	e36	68	e13
12	4.9	10	.13	3.9	3	.02	11	13	.41
13	4.9	10	.13	3.7	4	.03	7.3	12	.25
14	4.9	10	.14	3.8	6	.06	6.0	12	.21
15	4.9	10	.14	3.8	9	.08	e81	205	e140
16	4.6	10	.13	3.5	10	.08	e64	145	e44
17	e5.4	10	e.14	3.3	6	.06	e22	34	e2.9
18	86	217	196	e11	14	e.64	12	13	.44
19	e11	15	e.52	e8.6	11	e.25	28	61	38
20	7.4	14	.24	3.7	10	.09	273	649	844
21	6.7	17	.29	3.6	11	.11	e34	62	e6.7
22	5.7	18	.27	4.3	11	.13	19	25	1.4
23	5.2	18	.23	3.9	11	.11	e16	20	e1.0
24	4.6	18	.21	36	95	72	e18	7	e.33
25	4.1	18	.19	43	104	48	e16	13	e.85
26	4.1	17	.18	7.6	10	.20	e12	11	e.41
27	4.2	14	.16	5.4	10	.14	e11	5	e.14
28	4.2	11	.12	4.6	10	.12	11	5	.14
29	4.2	7	.08	5.1	10	.13	e10	5	e.13
30	4.2	6	.07	4.3	9	.10	9.0	5	.12
31	4.7	6	.08	4.1	9	.10	---	---	---
TOTAL	273.7	---	206.03	216.5	---	123.09	782.9	---	1100.81
YEAR	4412.7		2636.27						

e Estimated

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
JUN 1994					
28...	1300	11	119	3.5	99
SEP					
20...	1555	223	202	122	72

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

DRAINAGE AREA.--89.8 mi² (232.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959 (low-flow measurement only), February to November 1959 (monthly measurements only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	61	143	70	60	160	35	22	24	52	38	22
2	134	59	129	89	60	206	33	22	23	36	29	37
3	122	57	113	81	60	100	32	22	23	33	24	57
4	105	56	121	73	63	82	33	24	23	77	21	31
5	109	54	142	104	64	69	31	26	23	40	25	27
6	231	53	129	90	63	65	34	42	81	33	28	120
7	181	55	106	71	54	60	42	34	57	32	22	150
8	118	57	99	65	52	59	39	29	31	32	29	56
9	106	79	89	66	50	62	33	59	27	28	24	51
10	98	71	94	115	49	89	43	110	26	24	32	58
11	90	86	85	84	50	60	54	82	24	22	51	110
12	127	64	83	92	50	120	48	47	27	21	35	95
13	90	59	85	101	48	80	33	53	28	20	25	49
14	83	83	82	204	51	54	33	74	23	19	24	39
15	78	102	78	102	87	51	31	59	25	18	21	353
16	277	773	77	92	52	48	31	46	47	19	19	287
17	173	190	74	83	50	45	32	39	59	19	18	233
18	87	1020	87	83	52	44	31	37	89	705	27	92
19	77	621	84	77	85	45	31	33	47	147	90	92
20	73	748	76	70	1350	45	29	29	37	53	38	4590
21	73	756	79	73	192	42	27	28	27	39	26	513
22	67	265	75	70	114	40	29	27	23	33	22	201
23	91	169	74	64	220	39	29	27	21	29	22	137
24	74	172	72	61	229	39	28	26	20	26	62	137
25	61	149	74	62	118	37	27	24	20	25	592	104
26	162	308	69	65	88	47	24	27	396	23	73	91
27	73	192	67	60	78	38	23	26	124	22	43	73
28	95	138	94	62	73	35	25	25	54	22	38	66
29	91	119	79	60	---	35	26	24	53	22	42	60
30	65	280	81	60	---	44	25	23	56	23	29	54
31	60	---	70	67	---	39	---	23	---	23	25	---
TOTAL	3475	6896	2810	2516	3562	1979	971	1169	1538	1717	1594	7985
MEAN	112	230	90.6	81.2	127	63.8	32.4	37.7	51.3	55.4	51.4	266
MAX	277	1020	143	204	1350	206	54	110	396	705	592	4590
MIN	60	53	67	60	48	35	23	22	20	18	18	22
AC-FT	6890	13680	5570	4990	7070	3930	1930	2320	3050	3410	3160	15840
CFSM	1.25	2.56	1.01	.90	1.42	.71	.36	.42	.57	.62	.57	2.96
IN.	1.44	2.86	1.16	1.04	1.48	.82	.40	.48	.64	.71	.66	3.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

MEAN	370	313	228	147	110	89.0	83.0	247	255	227	251	257
MAX	1910	1131	714	559	291	306	226	863	1283	660	949	764
(WY)	1971	1988	1988	1992	1984	1989	1985	1985	1979	1961	1979	1979
MIN	44.2	64.9	33.6	45.3	35.6	23.2	32.4	33.7	34.1	21.8	51.4	37.4
(WY)	1968	1968	1968	1968	1968	1968	1994	1974	1975	1974	1994	1967

SUMMARY STATISTICS FOR 1993 CALENDAR YEAR FOR 1994 WATER YEAR WATER YEARS 1960 - 1994

ANNUAL TOTAL	70323	36212	215
ANNUAL MEAN	193	99.2	526
HIGHEST ANNUAL MEAN			82.3
LOWEST ANNUAL MEAN			1979
HIGHEST DAILY MEAN	6490	4590	17900
LOWEST DAILY MEAN	32	18	11
ANNUAL SEVEN-DAY MINIMUM	34	20	11
INSTANTANEOUS PEAK FLOW		24300	71500
INSTANTANEOUS PEAK STAGE		19.30	31.17
INSTANTANEOUS LOW FLOW		17	17
ANNUAL RUNOFF (AC-FT)	139500	71830	156100
ANNUAL RUNOFF (CFSM)	2.15	1.10	2.40
ANNUAL RUNOFF (INCHES)	29.13	15.00	32.59
10 PERCENT EXCEEDS	319	148	357
50 PERCENT EXCEEDS	102	59	104
90 PERCENT EXCEEDS	53	24	39

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1994.

INSTRUMENTATION.-- USD-49 and automatic sediment sampler.

REMARKS.--Sediment samples collected by local observer on a weekly basis and during highflow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov 27, 1987; Minimum daily mean, 8 mg/L January 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 227,000 tons (205,890 tonnes) Nov 27, 1987; Minimum daily mean, 0.85 tons (0.7 tonnes) August 4, 1993.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,450 mg/L September 20, 1994 ; minimum daily mean, 15 mg/L January 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 29,800 tons (27,000 tonnes) September 20, 1994; minimum daily 0.85 ton (0.77 tonnes) August 4, 1993.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
26...	1340	152	165	7.0	28.5	70	5.9	76	25	490	350
DEC											
07...	1030	37	575	7.6	26.0	13	4.0	49	12	7300	72000
FEB 1994											
17...	0820	50	255	7.2	24.5	23	5.6	66	<10	1600	760
APR											
28...	1025	28	291	7.3	28.0	0.20	3.4	43	<10	K1900	410
JUN											
20...	0830	38	232	7.2	28.5	48	1.4	18	14	2600	K140
AUG											
12...	0830	36	225	7.0	30.0	1.6	4.4	57	27	4400	530

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
26...	47	12	4.2	12	0.8	2.5	49	1.1	8.2	13	0.20
DEC											
07...	--	--	--	--	--	--	120	--	--	--	--
FEB 1994											
17...	--	--	--	--	--	--	80	--	--	--	--
APR											
28...	170	47	13	29	1	6.5	80	1.7	18	36	0.10
JUN											
20...	--	--	--	--	--	--	72	--	--	--	--
AUG											
12...	61	16	5.2	22	1	2.0	79	--	13	22	<0.10

K = non-ideal count

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	SILICA, DIS- SOLVED (MG/L AS SIO ₂)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993 26...	26	107	44.1	110	0.80	0.270	<1	100	20	1	<1
DEC 07...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994 17...	--	--	--	10	0.40	0.210	--	--	--	--	--
APR 28...	32	230	17.4	10	--	--	<1	<100	50	1	<1
JUN 20...	--	--	--	49	0.30	0.200	--	--	--	--	--
AUG 12...	28	156	15.3	29	0.50	0.160	--	--	--	--	--

[illegible]

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	204	161	104	61	38	6.2	143	77	35
2	134	44	16	59	33	5.4	129	38	12
3	122	208	71	57	40	6.0	113	45	14
4	105	93	27	56	66	9.4	121	78	28
5	109	96	28	54	106	15	142	119	46
6	231	192	156	53	114	16	129	111	40
7	181	149	79	55	88	13	106	70	20
8	118	72	24	57	62	9.4	99	33	8.8
9	106	32	9.1	79	61	14	89	31	7.4
10	98	35	9.2	71	35	7.0	94	33	8.0
11	90	48	12	86	78	19	85	31	7.4
12	127	109	40	64	54	9.6	83	29	6.5
13	90	81	20	59	31	4.9	85	25	5.5
14	83	76	17	83	68	17	82	21	4.6
15	78	71	15	102	90	25	78	19	4.0
16	277	209	343	773	1190	3290	77	18	3.8
17	173	144	85	190	303	171	74	18	3.6
18	87	79	19	1020	638	3030	87	17	4.0
19	77	70	14	621	446	879	84	29	6.7
20	73	67	13	748	552	1650	76	44	9.0
21	73	68	14	756	555	1810	79	58	12
22	67	62	11	265	209	155	75	67	14
23	91	81	21	169	96	46	74	59	12
24	74	67	14	172	136	64	72	36	7.0
25	61	57	9.3	149	127	52	74	20	3.9
26	162	139	77	308	227	185	69	16	3.0
27	73	90	18	192	231	124	67	15	2.8
28	95	88	30	138	132	51	94	65	19
29	91	85	22	119	104	34	79	30	6.7
30	65	50	8.9	280	224	239	81	15	3.3
31	60	41	6.6	---	---	---	70	16	4.7
TOTAL	3475	---	1333.1	6896	---	11956.9	2810	---	362.7

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	70	17	3.1	60	58	9.4	160	131	87
2	89	19	4.6	60	77	12	206	198	145
3	81	21	4.6	60	122	19	100	156	42
4	73	24	4.7	63	188	32	82	175	39
5	104	67	21	64	190	31	69	180	34
6	90	110	27	63	134	21	65	132	23
7	71	145	28	54	84	13	60	96	16
8	65	171	30	52	63	8.8	59	68	11
9	66	146	27	50	58	7.7	62	58	9.6
10	115	109	33	49	58	7.5	89	86	23
11	84	71	16	50	58	7.7	60	89	15
12	92	48	12	50	52	6.9	120	109	48
13	101	91	27	48	46	5.9	80	72	16
14	204	162	96	51	49	6.9	54	51	7.5
15	102	44	13	87	119	28	51	47	6.4
16	92	23	5.6	52	76	11	48	46	6.0
17	83	20	4.5	50	49	6.6	45	54	6.4
18	83	20	4.4	52	49	6.8	44	73	8.6
19	77	18	3.6	85	73	21	45	91	11
20	70	22	4.1	1350	911	5420	45	101	12
21	73	53	10	192	156	97	42	105	12
22	70	104	19	---	68	21	40	112	12
23	64	126	22	---	172	177	39	126	13
24	61	135	23	---	172	139	39	141	14
25	62	144	23	---	44	14	37	143	14
26	65	151	26	84	44	10	47	138	18
27	60	152	24	78	60	12	38	132	13
28	62	154	25	73	67	14	35	123	11
29	60	143	23	---	---	---	35	108	10
30	60	124	20	---	---	---	44	95	11
31	67	73	13	---	---	---	39	88	9.3
TOTAL	2516	---	597.2	---	---	6166.2	1979	---	703.8

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	35	82	7.5	22	23	1.3	24	27	1.8
2	33	435	40	22	23	1.3	23	25	1.5
3	32	71	6.2	22	23	1.3	23	24	1.4
4	33	70	6.2	24	24	1.4	23	24	1.4
5	31	70	5.9	26	27	1.8	23	25	1.5
6	34	69	6.4	42	40	4.5	81	75	20
7	42	74	8.3	34	34	3.1	57	55	9.4
8	39	84	8.8	29	30	2.3	31	32	2.7
9	33	94	8.1	59	55	10	27	40	2.9
10	43	99	11	110	97	31	26	66	4.6
11	54	104	15	82	74	19	24	86	5.8
12	48	618	83	47	46	6.0	27	85	6.1
13	33	108	9.7	53	50	7.4	28	76	5.5
14	33	115	10	74	67	13	23	70	4.4
15	31	131	11	59	56	9.2	25	60	4.2
16	31	134	11	46	45	5.7	47	47	5.9
17	32	98	8.0	39	39	4.0	59	56	9.6
18	31	60	5.1	37	37	3.6	89	89	23
19	31	35	2.8	33	32	2.7	47	45	5.9
20	29	30	2.2	29	29	2.2	37	37	3.7
21	27	29	2.1	28	28	2.0	27	33	2.4
22	29	30	2.4	27	28	2.0	23	34	2.2
23	29	28	2.0	27	28	2.0	21	29	1.6
24	28	28	2.0	26	27	1.8	20	22	1.1
25	27	27	1.8	24	27	1.8	20	40	2.1
26	24	25	1.6	27	27	1.8	396	654	1330
27	23	23	1.4	26	26	1.8	124	115	47
28	25	25	1.6	25	26	1.7	54	78	12
29	26	27	1.8	24	26	1.6	53	72	10
30	25	25	1.6	23	25	1.6	56	64	9.9
31	---	---	---	23	25	1.5	---	---	---
TOTAL	971	---	284.5	1169	---	150.4	1538	---	1539.6

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	52	56	8.0	38	38	3.9	22	24	1.4
2	36	44	4.4	29	31	2.5	37	38	4.7
3	33	33	2.9	24	20	1.3	57	62	9.5
4	77	72	17	21	15	.85	31	41	3.5
5	40	46	5.1	25	15	1.0	27	28	2.0
6	33	34	3.0	28	16	1.2	120	102	48
7	32	29	2.5	22	18	1.1	150	126	56
8	32	30	2.6	29	18	1.4	56	54	8.6
9	28	32	2.4	24	19	1.3	51	49	7.1
10	24	36	2.3	32	19	1.7	58	59	9.7
11	22	39	2.3	51	22	3.0	110	94	39
12	21	41	2.3	35	28	2.6	95	86	24
13	20	42	2.2	25	31	2.1	49	42	5.7
14	19	38	1.9	24	32	2.1	39	34	3.5
15	18	32	1.6	21	32	1.9	353	314	607
16	19	25	1.3	19	32	1.7	287	279	281
17	19	20	1.0	18	30	1.4	233	186	142
18	705	1010	6400	27	32	3.1	92	84	21
19	147	389	162	90	80	21	92	82	42
20	53	330	48	38	43	4.6	4590	1450	29800
21	39	251	26	26	29	2.0	513	110	205
22	33	155	14	22	24	1.4	201	29	16
23	29	66	5.2	22	24	1.4	137	26	9.6
24	26	41	2.9	62	58	23	137	23	8.7
25	25	38	2.5	592	396	1060	104	28	7.8
26	23	33	2.0	73	70	15	91	31	7.7
27	22	31	1.8	43	35	4.1	73	37	7.3
28	22	30	1.8	38	25	2.7	66	44	7.5
29	22	31	1.8	42	42	5.0	60	55	8.9
30	23	31	1.9	29	28	2.1	54	50	7.1
31	23	30	1.9	25	22	1.4	---	---	---
TOTAL	1717	---	6734.6	1594	---	1177.85	7985	---	31401.3

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1993							
16...	1010	1650	3890	17340	57	64	72
JUL 1994							
18...	1053	155	4340	1820	40	49	59
AUG							
25...	0238	1083	2160	6300	49	56	67
SEP							
07...	1810	104	803	225	85	89	92
20...	1116	21700	5020	294000	30	36	46
20...	1326	7990	2730	58900	35	41	52

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1993							
16...	83	91	99	99.8	99.9	100	100
JUL 1994							
18...	80	86	89	97	99	99.6	99.8
AUG							
25...	80	87	99	99.6	99.7	99.7	100
SEP							
07...	93	--	98	98.4	98.4	98.4	100
20...	58	70	84	95	95.7	99.5	99.7
20...	65	75	90	97.9	99.6	99.9	100

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
06...	1648	260	260	183	99
20...	1143	74	176	35	97
NOV					
16...	1008	1670	3570	16100	99
18...	1648	3150	1140	9700	99
20...	1642	647	288	503	98
MAR 1994					
11...	1825	57	1100	169	99
JUN					
18...	0930	120	333	108	99
JUL					
18...	1223	3460	4470	41760	98
18...	1428	1910	1900	9800	99
20...	1900	40	322	35	98
AUG					
25...	0031	1540	614	2550	83
SEP					
16...	1317	163	1980	871	96
17...	1100	211	159	90	99
20...	0424	1960	1620	8570	99
20...	1051	22600	2740	167000	88

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas, 3.9 mi (6.3 km) northwest from Caguas, and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA.--5.30 mi² (13.72 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	5.9	6.4	5.5	5.6	7.7	4.8	3.6	2.6	2.1	1.7	2.3
2	15	5.7	6.4	5.6	5.3	6.2	4.7	3.6	2.4	1.9	1.6	2.4
3	23	5.7	6.2	5.5	5.2	5.1	4.8	3.5	2.4	1.9	1.5	2.5
4	12	5.7	6.4	5.3	5.3	4.8	4.8	3.4	2.4	1.8	1.5	2.5
5	8.8	5.5	6.2	5.7	5.2	4.7	5.1	3.4	2.4	1.8	1.5	2.6
6	8.2	5.4	6.0	5.6	5.2	4.7	5.2	3.5	3.2	2.0	1.5	5.2
7	11	5.5	6.0	5.6	5.0	4.6	4.9	3.3	2.6	1.8	1.5	3.6
8	8.4	6.2	6.0	5.7	5.0	4.6	4.8	3.1	2.5	1.8	1.5	2.9
9	7.7	6.0	5.9	5.6	4.9	4.6	4.7	3.1	2.3	1.7	1.6	2.8
10	7.3	5.7	5.9	5.6	4.9	4.9	5.3	4.1	2.3	1.7	1.9	3.0
11	7.2	5.6	5.7	8.0	4.9	4.6	7.2	3.4	2.4	1.8	1.9	4.4
12	7.2	5.5	5.7	6.5	4.9	4.6	6.5	3.2	2.4	1.7	1.7	3.3
13	7.1	5.4	5.5	5.9	5.2	4.5	5.0	3.1	2.2	1.7	1.6	3.0
14	7.1	6.5	5.5	6.0	5.3	4.4	5.8	3.1	2.2	1.7	1.7	2.8
15	7.2	8.4	5.5	5.7	5.3	4.4	6.9	3.1	2.2	1.7	1.7	3.1
16	23	5.4	5.5	5.7	5.2	4.4	5.6	3.0	2.4	1.7	1.6	3.2
17	8.7	15	5.5	7.1	5.2	4.4	5.3	2.9	3.0	1.7	1.6	2.9
18	6.9	55	5.9	6.3	5.2	4.4	5.1	3.0	2.5	4.6	1.9	3.3
19	6.4	25	5.6	6.1	5.2	4.4	4.8	3.7	2.3	2.1	1.9	3.1
20	6.4	19	5.5	7.2	5.3	4.4	4.6	2.9	2.1	2.0	1.8	7.2
21	6.3	17	5.5	6.2	5.3	4.4	4.5	2.7	2.0	1.9	1.7	4.7
22	6.3	9.0	5.5	5.7	5.2	4.4	4.4	2.7	2.0	1.8	1.6	3.6
23	6.5	7.6	5.5	5.7	5.5	4.3	4.3	2.7	1.9	1.8	1.6	3.4
24	6.2	7.4	5.5	5.5	5.9	4.3	4.1	2.7	1.9	1.7	3.5	3.5
25	6.0	7.2	5.4	5.3	6.0	4.3	4.1	2.5	1.9	1.7	2.8	3.1
26	6.0	7.6	5.3	5.2	5.2	4.3	4.0	2.6	2.7	1.7	2.0	3.1
27	6.0	7.1	5.7	5.1	5.5	4.3	5.6	2.6	2.1	1.6	2.0	3.0
28	6.0	6.7	5.9	6.3	5.3	4.3	4.6	2.7	2.0	1.6	2.3	2.9
29	5.9	6.7	5.5	5.8	---	4.5	4.0	2.6	2.0	1.6	2.3	2.9
30	5.8	6.7	5.5	5.5	---	4.7	3.7	2.5	2.3	1.6	2.2	3.4
31	5.8	---	5.5	5.3	---	4.7	---	2.6	---	1.6	2.2	---
TOTAL	263.3	339.7	178.1	181.8	147.2	144.9	149.2	94.9	69.6	57.8	57.4	99.7
MEAN	8.49	11.3	5.75	5.86	5.26	4.67	4.97	3.06	2.32	1.86	1.85	3.32
MAX	23	55	6.4	8.0	6.0	7.7	7.2	4.1	3.2	4.6	3.5	7.2
MIN	5.8	5.4	5.3	5.1	4.9	4.3	3.7	2.5	1.9	1.6	1.5	2.3
AC-FT	522	674	353	361	292	287	296	188	138	115	114	198
CFSM	1.60	2.14	1.08	1.11	.99	.88	.94	.58	.44	.35	.35	.63
IN.	1.85	2.38	1.25	1.28	1.03	1.02	1.05	.67	.49	.41	.40	.70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994
MEAN	10.4	9.20	8.51	9.73	5.43
MAX	20.9	12.3	13.4	16.7	8.00
(WY)	1991	1993	1993	1992	1991
MIN	5.30	5.76	5.59	5.86	3.51
(WY)	1992	1991	1992	1994	1990

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	3849.2	1783.6	7.41
ANNUAL MEAN	10.5	4.89	11.1
HIGHEST ANNUAL MEAN			4.89
LOWEST ANNUAL MEAN			
HIGHEST DAILY MEAN	146	Jul 11	235
LOWEST DAILY MEAN	4.4	Apr 1	1.5
ANNUAL SEVEN-DAY MINIMUM	4.4	Apr 1	1.5
INSTANTANEOUS PEAK FLOW			2290
INSTANTANEOUS PEAK STAGE			18.28
INSTANTANEOUS LOW FLOW			1.5
ANNUAL RUNOFF (AC-FT)	7630	3540	5370
ANNUAL RUNOFF (CFSM)	1.99	.92	1.40
ANNUAL RUNOFF (INCHES)	27.02	12.52	19.01
10 PERCENT EXCEEDS	15	7.0	10
50 PERCENT EXCEEDS	7.2	4.7	5.0
90 PERCENT EXCEEDS	5.4	1.8	2.7

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS , PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,690 mg/L Jul. 11, 1993; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 3,730 tons (3,360 tonnes) Jan. 05, 1992; Minimum daily mean, 0.02 ton (0.03 tonne) Several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 691 mg/L Nov. 18, 1993; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 242 tons (220 tonnes) Nov. 18, 1993; Minimum daily mean, 0.02 ton (0.03 tonne) Several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	7.9	35	.73	5.9	19	.30	6.4	5	.09
2	15	138	16	5.7	20	.30	6.4	6	.10
3	23	268	44	5.7	19	.28	6.2	8	.14
4	12	142	5.0	5.7	12	.18	6.4	10	.18
5	8.8	135	3.2	5.5	6	.09	6.2	13	.22
6	8.2	133	2.9	5.4	4	.07	6.0	17	.27
7	11	125	4.6	5.5	4	.06	6.0	20	.32
8	8.4	33	.78	6.2	12	.29	6.0	21	.33
9	7.7	20	.41	6.0	24	.42	5.9	16	.26
10	7.3	18	.35	5.7	18	.27	5.9	11	.18
11	7.2	13	.25	5.6	18	.27	5.7	10	.15
12	7.2	8	.17	5.5	18	.26	5.7	8	.13
13	7.1	6	.12	5.4	21	.31	5.5	6	.10
14	7.1	5	.10	6.5	92	1.5	5.5	5	.08
15	7.2	5	.10	8.4	52	1.3	5.5	5	.08
16	23	236	57	54	608	231	5.5	5	.08
17	8.7	50	1.4	15	98	4.9	5.5	5	.08
18	6.9	15	.28	55	691	242	5.9	5	.08
19	6.4	10	.18	25	260	34	5.6	5	.08
20	6.4	10	.17	19	155	10	5.5	5	.08
21	6.3	8	.15	17	305	17	5.5	5	.08
22	6.3	7	.12	9.0	215	5.2	5.5	5	.08
23	6.5	5	.09	7.6	190	4.1	5.5	7	.11
24	6.2	5	.08	7.4	189	3.8	5.5	15	.22
25	6.0	7	.12	7.2	188	3.6	5.4	24	.35
26	6.0	10	.16	7.6	150	3.1	5.3	28	.40
27	6.0	11	.17	7.1	89	1.7	5.7	24	.36
28	6.0	11	.18	6.7	21	.38	5.9	15	.23
29	5.9	11	.18	6.7	7	.12	5.5	8	.11
30	5.8	12	.18	6.7	5	.09	5.5	8	.11
31	5.8	15	.24	---	---	---	5.5	13	.18
TOTAL	263.3	---	139.41	339.7	---	566.89	178.1	---	5.26

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	5.5	15	.22	5.6	5	.08	7.7	40	1.0
2	5.6	13	.19	5.3	5	.08	6.2	26	.48
3	5.5	16	.22	5.2	5	.08	5.1	12	.17
4	5.3	18	.25	5.3	4	.06	4.8	14	.18
5	5.7	10	.14	5.2	4	.06	4.7	15	.20
6	5.6	8	.11	5.2	3	.04	4.7	17	.21
7	5.6	5	.07	5.0	2	.03	4.6	18	.22
8	5.7	4	.07	5.0	3	.05	4.6	69	.85
9	5.6	5	.09	4.9	4	.06	4.6	35	.43
10	5.6	6	.10	4.9	4	.06	4.9	10	.12
11	8.0	37	1.3	4.9	5	.06	4.6	8	.11
12	6.5	18	.35	4.9	5	.07	4.6	7	.09
13	5.9	12	.20	5.2	5	.08	4.5	5	.07
14	6.0	15	.24	5.3	5	.08	4.4	5	.06
15	5.7	15	.24	5.3	5	.08	4.4	6	.08
16	5.7	15	.24	5.2	5	.08	4.4	8	.10
17	7.1	33	.83	5.2	5	.08	4.4	10	.11
18	6.3	13	.24	5.2	59	.82	4.4	10	.12
19	6.1	4	.07	5.2	105	1.5	4.4	10	.12
20	7.2	21	.57	5.3	137	1.9	4.4	10	.12
21	6.2	6	.12	5.3	154	2.2	4.4	8	.10
22	5.7	5	.08	5.2	155	2.2	4.4	6	.07
23	5.7	7	.11	5.5	148	2.2	4.3	5	.05
24	5.5	11	.16	5.9	139	2.3	4.3	3	.04
25	5.3	12	.17	6.0	130	2.1	4.3	3	.04
26	5.2	11	.16	5.2	124	1.8	4.3	46	.53
27	5.1	11	.15	5.5	116	1.8	4.3	95	1.1
28	6.3	18	.40	5.3	74	1.1	4.3	86	1.0
29	5.8	5	.08	---	---	---	4.5	79	.96
30	5.5	5	.08	---	---	---	4.7	75	.96
31	5.3	5	.08	---	---	---	4.7	77	.97
TOTAL	181.8	---	7.33	147.2	---	21.05	144.9	---	10.66

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.8	78	.98	3.6	6	.06	2.6	7	.05
2	4.7	79	1.0	3.6	7	.07	2.4	6	.04
3	4.8	84	1.1	3.5	9	.09	2.4	6	.04
4	4.8	79	1.0	3.4	10	.10	2.4	6	.04
5	5.1	45	.60	3.4	10	.10	2.4	8	.06
6	5.2	20	.27	3.5	11	.10	3.2	11	.09
7	4.9	17	.22	3.3	12	.10	2.6	14	.10
8	4.8	13	.16	3.1	12	.10	2.5	13	.09
9	4.7	10	.13	3.1	12	.10	2.3	10	.07
10	5.3	20	.32	4.1	14	.18	2.3	7	.05
11	7.2	41	1.2	3.4	7	.07	2.4	6	.04
12	6.5	24	.41	3.2	7	.06	2.4	5	.04
13	5.0	14	.19	3.1	8	.06	2.2	5	.04
14	5.8	9	.13	3.1	8	.06	2.2	4	.03
15	6.9	27	.89	3.1	9	.07	2.2	3	.02
16	5.6	24	.38	3.0	10	.08	2.4	2	.02
17	5.3	40	.56	2.9	10	.08	3.0	2	.02
18	5.1	38	.52	3.0	10	.08	2.5	4	.04
19	4.8	13	.16	3.7	14	.15	2.3	5	.03
20	4.6	9	.11	2.9	9	.07	2.1	5	.02
21	4.5	8	.10	2.7	10	.07	2.0	5	.02
22	4.4	6	.07	2.7	13	.09	2.0	4	.02
23	4.3	6	.06	2.7	17	.12	1.9	4	.03
24	4.1	10	.11	2.7	17	.12	1.9	8	.05
25	4.1	16	.18	2.5	13	.08	1.9	10	.06
26	4.0	25	.27	2.6	8	.05	2.7	10	.07
27	5.6	35	.64	2.6	6	.04	2.1	10	.06
28	4.6	17	.24	2.7	5	.04	2.0	11	.06
29	4.0	7	.07	2.6	5	.04	2.0	15	.08
30	3.7	5	.05	2.5	5	.04	2.3	21	.13
31	---	---	---	2.6	6	.05	---	---	---
TOTAL	149.2	---	12.12	94.9	---	2.52	69.6	---	1.51

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS , PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.1	22	.13	1.7	6	.02	2.3	3	.02
2	1.9	21	.11	1.6	8	.03	2.4	3	.02
3	1.9	18	.09	1.5	12	.05	2.5	4	.03
4	1.8	15	.07	1.5	15	.06	2.5	5	.04
5	1.8	17	.08	1.5	14	.05	2.6	5	.04
6	2.0	23	.11	1.5	11	.04	5.2	23	.50
7	1.8	24	.12	1.5	10	.04	3.6	11	.11
8	1.8	20	.10	1.5	10	.04	2.9	10	.08
9	1.7	15	.07	1.6	10	.04	2.8	10	.08
10	1.7	10	.05	1.9	10	.05	3.0	10	.09
11	1.8	8	.04	1.9	11	.06	4.4	10	.13
12	1.7	6	.03	1.7	15	.07	3.3	10	.09
13	1.7	7	.03	1.6	19	.08	3.0	10	.08
14	1.7	14	.06	1.7	19	.08	2.8	10	.08
15	1.7	23	.10	1.7	16	.07	3.1	10	.09
16	1.7	30	.13	1.6	12	.05	3.2	10	.09
17	1.7	31	.15	1.6	8	.03	2.9	10	.08
18	4.6	204	7.6	1.9	5	.02	3.3	11	.10
19	2.1	20	.12	1.9	5	.02	3.1	8	.07
20	2.0	16	.08	1.8	4	.02	7.2	55	1.5
21	1.9	11	.06	1.7	4	.02	4.7	16	.24
22	1.8	9	.05	1.6	4	.02	3.6	12	.12
23	1.8	7	.04	1.6	4	.02	3.4	12	.11
24	1.7	7	.04	3.5	15	.31	3.5	12	.11
25	1.7	8	.04	2.8	9	.08	3.1	12	.10
26	1.7	8	.04	2.0	6	.04	3.1	12	.10
27	1.6	8	.04	2.0	6	.04	3.0	12	.09
28	1.6	8	.04	2.3	6	.04	2.9	11	.08
29	1.6	8	.04	2.3	6	.04	2.9	9	.07
30	1.6	7	.03	2.2	5	.03	3.4	10	.09
31	1.6	6	.02	2.2	4	.02	---	---	---
TOTAL	57.8	---	9.71	57.4	---	1.58	99.7	---	4.43
YEAR	1783.6		782.47						

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
14...	1415	6.0	134	2.2	94
JUL 1994					
18...	0920	16	1560	67	85
18...	1005	8.0	316	7.5	97
SEP					
17...	1357	2.8	375	2.8	92

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR

LOCATION.--Lat 18°13'59", long 66°02'53", Hydrologic Unit 21010005, on left bank, 0.9 mi (1.4 km) southwest from Plaza de Caguas, 0.6 mi (1.0 km) northeast from Escuela Bunker, and 1.2 mi (1.9 km) northwest from Escuela Antonio S. Pedreira.

DRAINAGE AREA.--8.27 mi² (21.42 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 216 ft (66 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	7.5	8.7	7.0	7.4	19	e3.3	3.1	1.0	2.9	3.5	5.2
2	33	7.3	8.5	7.3	7.0	12	e3.3	3.0	.83	2.1	3.4	5.9
3	66	7.1	8.6	7.6	7.2	7.3	e3.4	3.1	.89	1.8	3.3	5.2
4	27	7.1	8.5	7.3	7.7	6.4	e3.4	2.9	.85	1.6	3.2	5.7
5	15	6.9	9.4	7.7	7.2	5.8	e4.0	2.7	e.84	1.5	3.0	4.6
6	14	6.9	8.6	7.5	6.9	5.4	e4.2	3.2	e3.8	2.4	3.1	21
7	23	6.7	8.6	8.0	6.7	5.3	e4.0	3.2	e.90	2.3	3.0	22
8	14	10	8.4	8.0	6.8	5.0	e3.8	2.8	e.76	1.7	2.9	11
9	12	9.6	8.6	7.6	6.7	5.1	e3.9	2.6	e.84	1.7	5.6	7.6
10	11	7.4	8.5	7.6	6.7	6.5	e7.3	2.7	e.76	1.5	5.2	6.7
11	10	7.9	7.9	14	6.6	5.1	e6.6	3.9	e.98	1.5	5.5	12
12	11	6.9	7.9	12	6.4	4.7	e6.9	3.0	e.76	1.4	4.1	11
13	9.9	6.5	7.9	8.3	6.4	4.7	4.4	2.6	e.84	1.3	3.3	7.0
14	8.9	12	7.9	8.0	6.7	4.3	4.3	2.3	e.84	1.3	4.4	5.4
15	9.2	18	7.8	6.7	7.0	4.2	4.8	2.1	e.76	1.3	3.3	9.1
16	68	187	7.6	6.6	6.4	4.0	5.9	2.1	e1.1	1.4	3.1	8.8
17	24	34	7.6	7.4	6.1	4.3	4.3	2.2	e1.8	1.4	3.1	7.0
18	13	161	9.2	7.9	5.8	4.0	4.1	1.8	e1.6	34	4.3	5.9
19	e11	69	8.3	6.8	6.8	4.0	3.9	2.0	e1.3	13	5.1	12
20	e9.6	45	7.3	9.7	7.0	4.0	3.6	1.7	e1.1	6.4	3.8	78
21	e9.0	37	7.3	8.9	6.4	4.0	3.5	1.4	e1.9	4.7	3.3	40
22	e9.0	17	7.3	7.5	6.4	4.0	3.2	1.3	e1.8	4.0	3.8	21
23	e11	13	7.3	7.0	7.5	4.2	3.1	1.2	1.7	4.5	3.9	11
24	e10	11	7.3	7.0	7.3	4.6	3.1	1.6	1.4	4.7	22	12
25	e9.0	11	7.2	6.9	6.8	4.4	3.0	1.9	1.4	3.9	34	7.5
26	e9.0	13	6.9	6.6	6.7	4.2	2.9	2.5	8.1	4.8	12	5.9
27	e9.0	10	6.9	6.6	6.9	4.0	3.4	1.7	3.5	4.5	7.7	5.6
28	8.7	9.8	7.2	7.3	7.7	4.0	5.3	2.1	2.3	4.2	7.6	4.8
29	7.8	9.2	7.3	8.3	---	3.9	3.7	1.4	1.8	3.5	8.1	4.2
30	7.6	9.2	7.2	7.0	---	e3.9	3.4	2.2	4.8	3.4	7.0	5.1
31	7.0	---	7.0	6.9	---	e3.6	---	1.2	---	3.4	5.7	---
TOTAL	495.5	764.0	244.7	243.0	191.2	165.9	124.0	71.5	51.25	128.1	191.3	368.2
MEAN	16.0	25.5	7.89	7.84	6.83	5.35	4.13	2.31	1.71	4.13	6.17	12.3
MAX	68	187	9.4	14	7.7	19	7.3	3.9	8.1	34	34	78
MIN	7.0	6.5	6.9	6.6	5.8	3.6	2.9	1.2	.76	1.3	2.9	4.2
AC-FT	983	1520	485	482	379	329	246	142	102	254	379	730
CFSM	1.93	3.08	.95	.95	.83	.65	.50	.28	.21	.50	.75	1.48
IN.	2.23	3.44	1.10	1.09	.86	.75	.56	.32	.23	.58	.86	1.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

	1992	1993	1994	1992	1993	1994	1992	1993	1994	1992	1993	1994
MEAN	14.8	31.4	22.4	13.9	8.01	5.81	16.0	21.7	7.95	18.7	12.2	18.6
MAX	16.0	37.4	37.0	20.0	9.20	6.26	27.8	41.2	14.9	45.5	20.2	23.5
(WY)	1994	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1992
MIN	13.5	25.5	7.89	7.84	6.83	5.35	4.13	2.31	1.71	4.13	6.17	12.3
(WY)	1993	1994	1994	1994	1994	1994	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1992 - 1994

ANNUAL TOTAL	7770.4	3038.65	
ANNUAL MEAN	21.3	8.33	16.4
HIGHEST ANNUAL MEAN			24.5
LOWEST ANNUAL MEAN			8.33
HIGHEST DAILY MEAN	447	Jul 11	447
LOWEST DAILY MEAN	5.4	Mar 12	.76
ANNUAL SEVEN-DAY MINIMUM	5.7	Mar 28	.83
INSTANTANEOUS PEAK FLOW			1270
INSTANTANEOUS PEAK STAGE			23.63
ANNUAL RUNOFF (AC-FT)	15410	6030	11900
ANNUAL RUNOFF (CFSM)	2.57	1.01	1.99
ANNUAL RUNOFF (INCHES)	34.95	13.67	26.99
10 PERCENT EXCEEDS	35	12	25
50 PERCENT EXCEEDS	12	6.4	7.9
90 PERCENT EXCEEDS	6.7	1.7	3.3

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1992 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: June 1992 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,950 mg/L Dec. 26, 1992; Minimum daily mean, 1 mg/L Jul. 18-19, 1994.

SEDIMENT LOADS: Maximum daily mean, 14,000 tons (12,700 tonnes) Dec. 26, 1992; Minimum daily mean, <0.01 ton (<0.01 tonne) Jul. 16-17, 1994.

EXTREMES FOR WATER YEARS 1992-94.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1992	702 (Sep. 19)	6 (Several days)	1,230 (Sep. 19)	.08 (Several days)
1993	2950 (Dec. 26)	2 (Apr. 18)	14,000 (Dec. 26)	.08 (Oct. 17)
1994	1590 (Nov. 16)	1 (Jun. 18-19)	2,340 (Nov. 16)	<0.01 (Jul. 16-17)

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	---	---	---	---	---	---	●7.0	12	●.22
2	---	---	---	---	---	---	●6.6	11	●.20
3	---	---	---	---	---	---	●6.6	10	●.18
4	---	---	---	---	---	---	●6.4	10	●.18
5	---	---	---	---	---	---	●7.0	11	●.20
6	---	---	---	---	---	---	●6.2	11	●.18
7	---	---	---	---	---	---	●6.0	10	●.16
8	---	---	---	---	---	---	●8.6	12	●.28
9	---	---	---	---	---	---	●8.0	14	●.30
10	---	---	---	---	---	---	●15	37	●4.3
11	---	---	---	---	---	---	9.5	15	.39
12	---	---	---	---	---	---	13	27	1.2
13	---	---	---	●16	---	---	14	24	.90
14	---	---	---	7.5	---	---	7.9	14	.32
15	---	---	---	6.4	10	.16	7.1	11	.19
16	---	---	---	9.3	16	.52	11	22	1.2
17	---	---	---	38	126	56	6.1	11	.20
18	---	---	---	13	26	1.1	6.1	10	.16
19	---	---	---	6.2	11	.19	5.3	9	.13
20	---	---	---	9.8	16	.48	4.5	8	.10
21	---	---	---	8.3	13	.28	6.7	10	.21
22	---	---	---	12	26	1.2	5.6	9	.14
23	---	---	---	88	368	403	4.8	8	.10
24	---	---	---	143	604	488	5.0	8	.09
25	---	---	---	44	131	42	●5.4	8	●.12
26	---	---	---	25	58	5.2	●5.4	8	●.12
27	---	---	---	14	27	.98	●5.2	8	●.12
28	---	---	---	●10	23	●.62	●5.6	8	●.12
29	---	---	---	●8.2	19	●.40	●5.8	8	●.12
30	---	---	---	●7.6	13	●.26	●5.8	8	●.12
31	---	---	---	●7.2	12	●.24	---	---	---
TOTAL	---	---	---	---	---	---	217.2	---	12.25

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	e5.1	8	e.12	e5.0	8	e.10	4.8	8	.10
2	e5.6	8	e.12	e5.2	8	e.12	4.5	8	.08
3	e5.2	8	e.12	e5.8	8	e.12	5.1	8	.10
4	e5.6	8	e.12	e8.0	11	e.24	5.4	8	.11
5	e5.6	8	e.12	e25	56	e3.8	17	46	5.0
6	e6.4	9	e.16	e120	375	e122	13	28	1.4
7	e5.4	8	e.12	e16	32	e1.4	8.5	16	.48
8	e5.4	8	e.12	e8.2	14	e.30	7.5	15	.56
9	e6.4	9	e.16	e7.0	13	e.24	21	53	4.7
10	e5.8	9	e.14	e6.2	12	e.20	6.5	11	.21
11	e5.4	8	e.12	e5.8	12	e.18	5.4	8	.12
12	e6.8	9	e.16	e6.0	11	e.18	4.9	8	.11
13	e5.4	9	e.13	e6.2	11	e.17	4.8	8	.10
14	e5.0	8	e.10	e5.6	10	e.16	5.3	10	.16
15	e4.9	8	e.10	e6.0	10	e.15	6.8	10	.21
16	e5.4	8	e.12	e5.4	8	e.13	13	31	1.6
17	e7.4	10	e.20	e5.0	7	e.10	11	19	.56
18	e11	16	e.48	e4.9	6	e.09	7.8	14	.33
19	e7.2	16	e.31	e4.8	6	e.08	131	702	1230
20	e6.0	11	e.18	e4.6	6	e.08	111	412	250
21	e5.6	10	e.15	e4.6	6	e.08	75	212	49
22	e7.8	11	e.22	e4.6	6	e.08	117	503	405
23	e11	16	e.48	e4.7	6	e.08	48	138	26
24	e6.8	16	e.28	e5.0	7	e.09	17	37	1.9
25	e8.0	13	e.28	e4.8	8	e.10	12	22	.68
26	e10	15	e.40	e4.5	10	e.12	9.5	16	.40
27	e6.8	15	e.28	5.0	11	.13	8.8	14	.32
28	e6.8	15	e.28	5.0	10	.12	8.4	14	.30
29	e5.4	15	e.22	5.0	8	.11	7.8	13	.26
30	e4.8	12	e.15	5.2	8	.10	8.0	13	.29
31	e5.0	8	e.10	6.6	8	.15	---	---	---
TOTAL	199.0	---	6.04	315.7	---	131.00	705.8	---	1980.08

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	9.0	15	.34	8.3	22	.68	57	290	61
2	8.5	14	.31	6.6	12	.23	27	250	20
3	8.1	13	.27	32	129	22	17	98	4.8
4	7.9	12	.23	51	174	28	16	33	1.2
5	6.8	11	.20	23	55	4.1	12	26	.86
6	106	256	241	11	40	1.2	12	20	.60
7	44	123	24	8.5	28	.64	9.9	15	.42
8	14	31	1.4	7.5	20	.43	9.3	20	.48
9	11	19	.59	7.8	23	.47	9.1	21	.50
10	26	69	13	32	170	30	8.8	13	.31
11	14	29	1.5	8.4	37	.99	8.6	11	.25
12	8.9	17	.40	6.8	16	.31	8.0	8	.18
13	7.3	15	.29	6.4	12	.21	7.7	8	.17
14	6.7	14	.25	5.9	13	.21	37	125	87
15	6.6	11	.18	6.1	15	.25	20	50	4.8
16	6.0	6	.10	6.2	13	.19	9.5	17	.44
17	6.0	5	.08	42	239	116	9.3	12	.29
18	28	41	6.5	88	321	179	8.5	10	.22
19	12	70	2.5	25	72	6.7	8.2	10	.20
20	8.3	60	1.2	11	33	.97	8.1	10	.20
21	7.0	31	.62	9.0	30	.83	7.5	10	.19
22	7.6	14	.25	23	77	10	17	39	2.7
23	7.3	16	.31	15	83	4.4	9.5	18	.51
24	9.3	22	.57	9.9	35	.90	11	15	.43
25	7.5	24	.49	8.0	18	.38	40	112	29
26	6.2	20	.34	7.5	15	.30	401	2950	14000
27	5.9	14	.22	147	688	738	103	343	125
28	5.4	12	.17	239	1320	2540	32	87	8.3
29	6.7	10	.19	44	170	25	115	404	203
30	6.1	7	.12	227	1170	2360	52	106	25
31	5.7	7	.11	---	---	---	56	144	42
TOTAL	419.8	---	297.73	1122.9	---	6072.39	1147.0	---	14620.05

• Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	22	63	3.5	11	9	.27	7.8	25	.52
2	20	47	2.4	11	11	.31	7.6	20	.41
3	18	16	.76	13	14	.47	6.9	13	.24
4	18	16	.71	10	18	.47	6.8	10	.18
5	18	19	.82	10	23	.59	6.6	10	.17
6	16	21	.88	9.7	27	.68	6.0	10	.16
7	106	404	306	9.7	28	.68	6.4	13	.22
8	44	140	26	9.5	27	.63	6.5	13	.22
9	21	20	1.2	9.3	26	.61	6.7	11	.19
10	19	15	.72	9.1	25	.60	6.3	14	.23
11	18	14	.64	9.4	27	.63	5.8	14	.21
12	17	10	.43	9.4	26	.64	5.4	11	.15
13	16	12	.50	9.8	24	.58	5.9	10	.14
14	15	22	.86	8.6	24	.54	6.0	14	.22
15	14	22	.81	8.5	21	.46	5.6	22	.33
16	14	14	.53	12	26	1.2	6.3	27	.43
17	13	13	.48	12	29	.95	6.7	20	.37
18	13	18	.64	8.8	26	.62	6.5	13	.23
19	13	19	.63	8.4	22	.49	6.4	11	.19
20	12	13	.39	8.2	19	.41	6.1	10	.17
21	12	10	.30	8.6	16	.36	5.5	10	.15
22	27	69	16	8.5	11	.24	5.6	10	.14
23	37	104	28	8.3	7	.15	6.1	9	.14
24	14	23	.83	7.4	10	.18	6.6	7	.13
25	13	19	.67	6.9	20	.34	6.2	14	.23
26	13	20	.67	7.0	31	.54	6.4	27	.43
27	12	16	.51	6.7	32	.58	6.2	35	.53
28	12	19	.56	6.7	28	.51	5.7	26	.39
29	12	20	.59	---	---	---	6.0	14	.20
30	11	13	.37	---	---	---	5.9	12	.17
31	11	9	.27	---	---	---	5.6	18	.27
TOTAL	621	---	397.67	257.5	---	14.73	194.1	---	7.76

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	5.6	35	.50	94	403	239	11	12	.35
2	5.5	49	.71	130	425	195	11	16	.44
3	5.9	48	.71	43	143	23	10	17	.44
4	5.8	34	.50	20	65	3.4	9.9	17	.45
5	6.1	20	.29	18	63	3.1	9.9	17	.44
6	6.2	14	.20	68	231	91	9.0	19	.44
7	6.3	12	.19	31	100	11	8.9	21	.49
8	11	23	1.3	18	90	4.6	9.9	21	.52
9	18	46	2.9	111	376	162	9.7	15	.40
10	13	29	1.2	41	111	15	10	11	.28
11	12	26	1.3	22	39	2.5	9.8	21	.53
12	18	43	2.4	18	17	.80	9.7	27	.66
13	43	131	47	16	19	.84	9.8	21	.52
14	17	38	2.1	307	1670	4290	12	23	.99
15	251	1610	5900	32	46	5.1	13	27	1.1
16	53	166	37	18	30	1.4	11	25	.84
17	19	25	1.5	15	29	1.2	9.5	19	.47
18	14	2	.07	13	22	.83	11	20	.78
19	12	7	.22	13	14	.43	80	276	89
20	50	166	67	13	10	.28	57	170	53
21	25	68	4.8	12	7	.22	16	30	1.3
22	19	54	3.0	12	8	.24	16	22	.90
23	13	26	.95	49	224	153	12	20	.65
24	13	15	.48	16	42	2.1	11	19	.55
25	12	28	.84	14	25	.94	11	17	.47
26	16	46	3.8	57	204	131	10	16	.42
27	25	105	11	22	27	1.9	9.8	15	.39
28	21	79	8.4	16	11	.49	12	22	.91
29	86	666	530	13	14	.49	12	21	.68
30	33	177	19	13	15	.49	15	32	1.6
31	---	---	---	12	11	.34	---	---	---
TOTAL	835.4	---	6649.36	1277	---	5341.69	446.9	---	160.01

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	11	13	.36	16	11	.44	11	15	.44
2	11	17	.59	15	10	.42	11	33	.96
3	15	31	1.6	15	10	.43	11	44	1.3
4	11	19	.64	15	10	.42	13	46	1.6
5	9.5	10	.23	15	10	.42	17	51	4.6
6	9.2	10	.24	14	10	.38	22	52	4.9
7	14	51	3.2	14	10	.38	14	57	2.3
8	11	15	.48	14	10	.38	12	42	1.3
9	8.8	11	.25	13	15	.54	11	41	1.2
10	8.4	13	.30	14	19	.70	11	30	.90
11	447	2890	7540	14	20	.73	11	30	.88
12	56	1470	204	13	19	.64	9.2	24	.65
13	67	275	106	13	14	.47	10	19	.48
14	32	87	9.7	13	9	.32	9.9	19	.50
15	31	81	15	15	23	1.1	11	17	.48
16	22	43	3.2	168	990	808	15	31	1.8
17	16	28	1.3	24	52	4.1	11	20	.66
18	15	25	1.0	16	20	.79	204	1570	8180
19	17	21	.88	14	18	.64	25	103	8.2
20	16	20	.86	13	16	.52	20	84	8.4
21	16	20	.86	13	15	.48	11	95	3.0
22	111	578	787	36	97	19	9.5	34	.87
23	163	670	511	24	51	4.4	16	34	2.9
24	139	670	594	15	18	.67	13	62	2.5
25	38	97	11	14	21	.74	9.4	49	1.2
26	25	60	4.3	13	26	.88	11	41	1.2
27	21	45	2.6	13	19	.62	9.4	22	.62
28	18	26	1.2	12	6	.21	20	73	12
29	17	15	.68	13	6	.21	27	95	13
30	17	14	.65	12	8	.25	14	27	1.1
31	17	12	.53	12	6	.19	---	---	---
TOTAL	1409.9	---	9803.65	625	---	849.47	599.4	---	8259.94
YEAR	8955.9		52474.45						

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	8.8	18	.42	7.5	40	.92	8.7	94	2.2
2	33	113	32	7.3	34	.70	8.5	88	2.0
3	66	261	115	7.1	12	.24	8.6	72	1.6
4	27	72	7.4	7.1	7	.15	8.5	65	1.5
5	15	36	1.6	6.9	10	.17	9.4	59	1.6
6	14	34	1.4	6.9	14	.28	8.6	54	1.3
7	23	72	7.3	6.7	12	.22	8.6	46	1.0
8	14	26	1.0	10	59	2.3	8.4	45	.99
9	12	21	.69	9.6	34	.94	8.6	64	1.5
10	11	25	.71	7.4	10	.20	8.5	75	1.7
11	10	28	.83	7.9	11	.24	7.9	59	1.3
12	11	30	.90	6.9	5	.11	7.9	38	.81
13	9.9	31	.88	6.5	12	.25	7.9	22	.47
14	8.9	24	.58	12	27	1.0	7.9	15	.31
15	9.2	18	.44	18	57	2.6	7.8	22	.46
16	68	377	237	187	1590	2340	7.6	41	.83
17	24	208	16	34	254	24	7.6	55	1.1
18	13	21	.74	161	1030	945	9.2	51	1.2
19	e11	18	e.51	69	335	102	8.3	20	.48
20	e9.6	20	e.50	45	146	24	7.3	41	.81
21	e9.0	22	e.53	37	92	10	7.3	55	1.1
22	e9.0	20	e.49	17	21	1.0	7.3	38	.74
23	e11	16	e.46	13	12	.45	7.3	20	.39
24	e10	16	e.42	11	41	1.2	7.3	15	.29
25	e9.0	15	e.37	11	64	1.9	7.2	18	.35
26	e9.0	10	e.25	13	70	2.4	6.9	19	.34
27	e9.0	8	e.23	10	75	2.2	6.9	44	.81
28	8.7	16	.37	9.8	76	2.0	7.2	65	1.3
29	7.8	50	1.1	9.2	64	1.6	7.3	37	.73
30	7.6	52	1.1	9.2	72	1.8	7.2	24	.46
31	7.0	38	.71	---	---	---	7.0	11	.20
TOTAL	495.5	---	431.93	764.0	---	3469.87	244.7	---	29.87

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAQUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	7.0	9	.17	7.4	3	.06	19	56	8.1
2	7.3	6	.13	7.0	8	.15	12	28	1.1
3	7.6	30	.61	7.2	19	.36	7.3	14	.25
4	7.3	56	1.1	7.7	31	.61	6.4	12	.20
5	7.7	32	.64	7.2	43	.82	5.8	12	.18
6	7.5	32	.64	6.9	42	.78	5.4	11	.15
7	8.0	17	.39	6.7	22	.40	5.3	10	.14
8	8.0	17	.39	6.8	6	.11	5.0	10	.14
9	7.6	15	.30	6.7	9	.17	5.1	10	.14
10	7.6	15	.30	6.7	14	.26	6.5	14	.30
11	14	62	3.3	6.6	13	.23	5.1	10	.13
12	12	92	3.5	6.4	12	.20	4.7	9	.12
13	8.3	33	.77	6.4	12	.20	4.7	8	.11
14	8.0	24	.56	6.7	19	.37	4.3	8	.10
15	6.7	52	.95	7.0	41	.76	4.2	8	.10
16	6.6	66	1.2	6.4	54	.92	4.0	8	.09
17	7.4	49	.99	6.1	50	.82	4.3	8	.08
18	7.9	48	1.0	5.8	50	.80	4.0	5	.06
19	6.8	43	.76	6.8	50	.86	4.0	2	.03
20	9.7	28	.83	7.0	39	.73	4.0	5	.05
21	8.9	40	.97	6.4	20	.36	4.0	8	.08
22	7.5	66	1.3	6.4	12	.20	4.0	8	.08
23	7.0	61	1.2	7.5	15	.27	4.2	8	.09
24	7.0	50	.93	7.3	15	.28	4.6	8	.10
25	6.9	49	.90	6.8	14	.26	4.4	8	.10
26	6.6	26	.47	6.7	13	.23	4.2	8	.09
27	6.6	3	.06	6.9	15	.30	4.0	8	.08
28	7.3	4	.09	7.7	16	.33	4.0	7	.08
29	8.3	5	.11	---	---	---	3.9	7	.08
30	7.0	5	.10	---	---	---	e3.9	7	e.08
31	6.9	4	.08	---	---	---	e3.6	7	e.07
TOTAL	243.0	---	24.74	191.2	---	11.84	165.9	---	12.50

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	3.3	7	.06	3.1	47	.40	1.0	51	.13
2	3.3	7	.06	3.0	47	.38	.83	53	.11
3	3.4	7	.06	3.1	31	.26	.89	53	.11
4	3.4	6	.06	2.9	14	.11	.85	52	.12
5	4.0	8	.10	2.7	18	.13	.84	52	.12
6	4.2	7	.08	3.2	29	.23	3.8	51	.52
7	4.0	6	.06	3.2	25	.21	.90	48	.12
8	3.8	6	.06	2.8	16	.13	.76	62	.13
9	3.9	6	.07	2.6	10	.07	.84	72	.17
10	7.3	16	.70	2.7	8	.07	.76	69	.14
11	6.6	13	.26	3.9	8	.07	.98	67	.17
12	6.9	14	.29	3.0	8	.06	.76	43	.08
13	4.4	8	.12	2.6	7	.05	.84	17	.04
14	4.3	6	.06	2.3	8	.06	.84	13	.03
15	4.8	9	.14	2.1	13	.07	.76	12	.03
16	5.9	13	.27	2.1	23	.18	1.1	6	.02
17	4.3	8	.11	2.2	33	.19	1.8	3	.01
18	4.1	7	.09	1.8	32	.15	1.6	1	.01
19	3.9	7	.08	2.0	16	.07	1.3	1	.01
20	3.6	6	.07	1.7	22	.09	1.1	3	.01
21	3.5	6	.06	1.4	35	.14	1.9	6	.03
22	3.2	6	.06	1.3	17	.07	1.8	10	.04
23	3.1	6	.06	1.2	4	.02	1.7	21	.09
24	3.1	6	.06	1.6	4	.02	1.4	35	.13
25	3.0	5	.05	1.9	5	.03	1.4	22	.08
26	2.9	5	.04	2.5	8	.07	8.1	14	.66
27	3.4	6	.05	1.7	25	.11	3.5	7	.07
28	5.3	43	.61	2.1	45	.17	2.3	11	.07
29	3.7	40	.39	1.4	37	.13	1.8	13	.06
30	3.4	40	.36	2.2	15	.08	4.8	35	1.3
31	---	---	---	1.2	33	.10	---	---	---
TOTAL	124.0	---	4.54	71.5	---	3.92	51.25	---	4.59

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.9	27	.20	3.5	9	.09	5.2	12	.18
2	2.1	23	.12	3.4	7	.07	5.9	12	.30
3	1.8	22	.10	3.3	5	.05	5.2	8	.12
4	1.6	14	.06	3.2	5	.05	5.7	10	.15
5	1.5	11	.04	3.0	7	.06	4.6	6	.09
6	2.4	14	.07	3.1	6	.05	21	61	7.1
7	2.3	13	.08	3.0	5	.05	22	58	3.9
8	1.7	9	.05	2.9	4	.04	11	23	.71
9	1.7	5	.03	5.6	6	.09	7.6	14	.26
10	1.5	4	.02	5.2	8	.11	6.7	14	.30
11	1.5	4	.02	5.5	10	.12	12	26	1.1
12	1.4	3	.02	4.1	8	.09	11	21	.68
13	1.3	3	.02	3.3	5	.04	7.0	13	.24
14	1.3	4	.02	4.4	10	.15	5.4	11	.16
15	1.3	3	.01	3.3	5	.04	9.1	22	.79
16	1.4	2	<.01	3.1	5	.04	8.8	19	.46
17	1.4	2	<.01	3.1	5	.04	7.0	14	.27
18	34	96	20	4.3	5	.06	5.9	11	.16
19	13	23	1.0	5.1	5	.07	12	32	3.6
20	6.4	7	.12	3.8	5	.05	78	283	89
21	4.7	5	.07	3.3	5	.04	40	112	16
22	4.0	6	.06	3.8	5	.06	21	37	2.9
23	4.5	6	.07	3.9	6	.07	11	5	.15
24	4.7	6	.08	22	71	13	12	6	.21
25	3.9	7	.09	34	73	9.7	7.5	5	.10
26	4.8	9	.11	12	16	.50	5.9	4	.06
27	4.5	13	.15	7.7	27	.51	5.6	4	.06
28	4.2	15	.15	7.6	28	.63	4.8	4	.05
29	3.5	9	.09	8.1	18	.39	4.2	4	.04
30	3.4	5	.05	7.0	11	.19	5.1	7	.15
31	3.4	8	.08	5.7	12	.21	---	---	---
TOTAL	128.1	---	22.98	191.3	---	26.66	368.2	---	129.29
YEAR	3038.65		4172.73						

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1992							
06...	1638	450	1790	2170	55	64	--
NOV							
17...	1954	299	2850	2300	55	69	74.6
18...	1507	340	2170	1990	57	66	71.7
30...	0630	284	1030	790	67	72	77.5
DEC							
01...	1655	98	1430	378	59	67	69.4
25...	1745	135	907	331	70	76	81.3
APR 1993							
15...	1600	768	7450	1540	28	32	40.7
20...	1730	211	1770	1000	54	62	72
20...	1835	210	1850	1050	55	68	75.6
29...	1700	172	1860	863	53	59	65

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1992							
06...	81.7	83.7	97.1	98.5	99.4	99.8	99.9
NOV							
17...	82.5	86.4	98.5	99.5	99.8	99.9	100
18...	78.4	85.4	98.1	99.4	99.9	100	100
30...	84	87.6	98.5	99.3	99.7	99.8	99.9
DEC							
01...	75.8	85.2	97.5	99.5	99.8	99.9	100
25...	87.4	--	97.5	99	99.5	99.7	99.9
APR 1993							
15...	49	59.6	75.2	86.3	94.7	98.2	99.8
20...	83	87	97.7	99.2	99.6	99.8	99.1
20...	86	90	97	98.3	98.8	99.4	99.9
29...	74	82	96.6	99.4	99.9	100	100

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
MAY 1993							
14...	0750	553	11900	17800	32	40	45.3
JUL							
22...	1545	16	16	251	31	41	43.2
AUG							
16...	1015	552	4160	6200	32	39	48
SEP							
22...	1610	9.5	2120	54	55	59	64
NOV							
16...	0700	960	6310	16360	43	54	68
16...	0805	486	4260	5580	56	59	70
18...	1345	272	2720	2000	49	56	63

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
MAY 1993							
14...	59	70	89	95.7	98.8	99.7	99.9
JUL							
22...	56	71	88	97.5	99.4	99.9	100
AUG							
16...	60	72	85	95	98.6	99.3	99.8
SEP							
22...	71	74	95	98.5	99.6	100	100
NOV							
16...	81	89	99	99.7	99.9	100	100
16...	78	89	98	99	99.8	99.9	100
18...	75	84	97	99	99.8	99.9	100

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NERAR CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
SEP 1992					
22...	1530	349	590	556	92
22...	1748	393	1170	1240	97
OCT					
06...	1453	309	506	422	93
06...	1538	745	1220	2450	90
NOV					
17...	1919	296	863	690	93
18...	1437	23	1020	63	97
28...	1630	153	584	241	99
30...	0734	230	707	439	98
DEC					
02...	1715	22	215	13	92
25...	1715	150	656	266	99
JAN 1993					
05...	1800	25	988	67	78
07...	1425	20	255	14	97
FEB					
04...	1730	11	134	4	97
APR					
09...	1300	9.2	138	3.4	70
11...	1545	9.9	79	2.1	96
13...	1105	11	388	12	99
14...	1005	15	395	16	94
20...	1435	18	330	16	98
29...	1728	311	6590	5530	52
29...	1755	560	1610	2430	94
MAY					
09...	1515	80	309	67	80
14...	0940	1490	7170	28800	79
23...	1700	148	780	312	96
AUG					
16...	0900	190	1450	744	94
16...	1429	363	2010	1970	91

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
16...	1515	29	119	9.3	97
JUL 1994					
18...	1245	30	90	7.3	95
18...	1315	62	87	15	98
18...	1405	63	105	18	91

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at C. 4 street Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Rio Grande de Loiza, and 0.95 mi (1.53 km) northeast from Caguas Plaza.

DRAINAGE AREA.--11.71 mi² (30.33 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e14	e12	e13	e10	e15	e40	e4.3	e4.3	e1.7	e5.0	e2.8	e2.4
2	e50	e11	e12	e11	e13	e17	e4.3	e4.0	e1.4	e3.7	e2.7	e2.8
3	e110	e11	e13	e12	e14	e11	e4.4	e4.3	e1.5	e3.0	e2.6	e2.4
4	e46	e10	e12	e11	e15	e8.6	e4.4	e3.9	e1.4	e2.6	e2.5	e2.7
5	e24	e10	e15	e12	e14	e7.6	e5.2	e3.6	e1.4	e2.4	e2.4	e2.1
6	e22	e9.8	e13	e11	e13	e7.0	e5.6	e4.4	e6.4	e3.8	e2.5	e9.6
7	e38	e9.6	e13	e13	e13	e6.8	e5.2	e4.4	e1.5	e3.7	e2.4	e10
8	e22	e16	e12	e13	e14	e6.4	e5.0	e3.9	e1.3	e2.7	e2.3	e5.2
9	e19	e15	e13	e12	e13	e6.6	e5.2	e3.5	e1.4	e2.7	e4.5	e3.5
10	e18	e12	e13	e12	e13	e8.4	e9.8	e3.6	e1.3	e2.4	e4.2	e3.1
11	e16	e13	e12	e27	e13	e6.8	e8.8	e5.2	e1.7	e2.4	e4.4	e5.6
12	e18	e11	e12	e24	e12	e6.0	e9.2	e4.0	e1.3	e2.2	e3.4	e5.2
13	e16	e10	e12	e16	e12	e6.0	e5.8	e3.6	e1.4	e2.1	e2.7	e3.3
14	e14	e20	e12	e15	e13	e5.6	e5.2	e3.2	e1.4	e2.1	e3.5	e2.5
15	e15	e29	e12	e13	e14	e5.4	e6.0	e2.8	e1.3	e2.1	e2.7	e4.3
16	e110	e300	e11	e12	e13	e5.2	e8.0	e2.8	e1.8	e2.2	e2.5	e4.1
17	e40	e54	e11	e14	e12	e5.6	e5.8	e3.0	e3.0	e2.2	e2.5	e3.3
18	e21	e260	e15	e16	e11	e5.2	e5.6	e2.4	e2.7	e29	e3.4	e2.7
19	e18	e140	e13	e13	e13	e5.2	e5.2	e2.3	e2.2	e10	e4.1	e5.2
20	e15	e70	e12	e19	e14	e5.2	e5.0	e2.2	e1.8	e5.4	e3.1	e36
21	e14	e60	e12	e18	e13	e5.2	e4.8	e2.2	e3.2	e3.7	e2.7	e18
22	e14	e28	e12	e16	e13	e5.2	e4.4	e4.1	e3.0	e3.2	e3.0	e10
23	e18	e20	e12	e14	e15	e5.4	e4.2	e2.0	e2.8	e3.5	e3.1	e5.2
24	e16	e17	e12	e14	e14	e6.0	e4.2	e2.7	e2.3	e3.7	e10	e5.6
25	e14	e17	e11	e14	e13	e5.6	e4.0	e3.1	e2.3	e3.1	e16	e3.9
26	e14	e21	e10	e13	e12	e5.4	e3.8	e4.1	e13	e3.8	e5.4	e2.8
27	e14	e16	e10	e13	e13	e5.2	e4.5	e2.8	e6.4	e3.6	e3.6	e2.6
28	e14	e15	e11	e14	e15	e5.2	e7.2	e3.5	e3.8	e3.4	e3.5	e2.3
29	e13	e14	e12	e17	---	e5.0	e5.0	e2.3	e3.0	e2.8	e3.9	e2.0
30	e12	e14	e11	e14	---	e5.0	e4.7	e3.6	e8.0	e2.7	e3.3	e2.4
31	e11	---	e10	e13	---	e4.8	---	e2.0	---	e2.7	e2.7	---
TOTAL	800	1245.4	374	446	372	233.6	164.8	103.8	85.7	127.9	118.4	170.8
MEAN	25.8	41.5	12.1	14.4	13.3	7.54	5.49	3.35	2.86	4.13	3.82	5.69
MAX	110	300	15	27	15	40	9.8	5.2	13	29	16	36
MIN	11	9.6	10	10	11	4.8	3.8	2.0	1.3	2.1	2.3	2.0
AC-FT	1590	2470	742	885	738	463	327	206	170	254	235	339
CFSM	2.20	3.55	1.03	1.23	1.13	.64	.47	.29	.24	.35	.33	.49
IN.	2.54	3.96	1.19	1.42	1.18	.74	.52	.33	.27	.41	.38	.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	24.5	44.3	29.2	46.3	16.9	10.9	16.9	27.7	15.2	29.0	22.0	25.6
MAX	27.6	56.8	58.4	120	23.8	15.3	39.8	59.8	30.7	74.6	36.1	44.2
(WY)	1993	1993	1993	1992	1991	1991	1993	1993	1993	1993	1992	1992
MIN	20.0	34.5	12.1	14.4	10.8	7.54	5.49	3.35	2.86	4.13	3.82	5.69
(WY)	1992	1992	1994	1994	1992	1994	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1991 - 1994

ANNUAL TOTAL	12700.5	4242.4	27.3
ANNUAL MEAN	34.8	11.6	40.1
HIGHEST ANNUAL MEAN			11.6
LOWEST ANNUAL MEAN			11.6
HIGHEST DAILY MEAN	851	Jul 11	1930
LOWEST DAILY MEAN	6.0	Apr 4	1.3
ANNUAL SEVEN-DAY MINIMUM	6.6	Mar 31	1.4
INSTANTANEOUS PEAK FLOW			300
INSTANTANEOUS PEAK STAGE			.00
ANNUAL RUNOFF (AC-FT)	25190	8410	19790
ANNUAL RUNOFF (CFSM)	2.97	.99	2.33
ANNUAL RUNOFF (INCHES)	40.35	13.48	31.69
10 PERCENT EXCEEDS	48	17	37
50 PERCENT EXCEEDS	24	6.0	14
90 PERCENT EXCEEDS	11	2.4	4.4

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1990 to September 1994

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,430 mg/L Jan. 05, 1992; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 8,820 tons (8,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.03 ton (0.02 tonne) Jun. 15, 1994

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 700 mg/L Nov. 16, 1993; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 657 tons (596 tonnes) Nov. 16, 1993; Minimum daily mean, 0.03 ton (0.02 tonne) Jun. 15, 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	e14	120	e4.5	e12	91	e2.9	e13	73	e2.6
2	e50	203	e27	e11	94	e2.8	e12	94	e3.1
3	e110	153	e45	e11	97	e2.9	e13	76	e2.7
4	e46	53	e6.5	e10	99	e2.7	e12	39	e1.3
5	e24	23	e1.5	e10	103	e2.8	e15	20	e.81
6	e22	21	e1.2	e9.8	113	e3.0	e13	23	e.79
7	e38	24	e2.4	e9.6	128	e3.3	e13	44	e1.5
8	e22	28	e1.6	e16	143	e6.2	e12	67	e2.2
9	e19	30	e1.5	e15	155	e6.3	e13	69	e2.4
10	e18	30	e1.5	e12	165	e5.3	e13	56	e2.0
11	e16	30	e1.3	e13	175	e6.1	e12	44	e1.4
12	e18	23	e1.1	e11	180	e5.3	e12	32	e1.0
13	e16	17	e.73	e10	180	e4.9	e12	19	e.60
14	e14	20	e.74	e20	180	e9.7	e12	13	e.42
15	e15	66	e2.7	e29	180	e14	e12	45	e1.4
16	e110	270	e80	e300	700	e567	e11	130	e3.9
17	e40	153	e16	e54	174	e25	e11	248	e7.4
18	e21	30	e1.7	e260	611	e429	e15	260	e11
19	e18	22	e1.1	e140	340	e129	e13	170	e6.0
20	e15	20	e.82	e70	177	e33	e12	112	e3.6
21	e14	61	e2.3	e60	102	e16	e12	92	e3.0
22	e14	97	e3.7	e28	69	e5.2	e12	88	e2.9
23	e18	87	e4.2	e20	97	e5.2	e12	83	e2.7
24	e16	79	e3.4	e17	99	e4.5	e12	80	e2.6
25	e14	76	e2.9	e17	88	e4.0	e11	76	e2.3
26	e14	76	e2.9	e21	71	e4.0	e10	71	e1.9
27	e14	76	e2.9	e16	50	e2.2	e10	73	e2.0
28	e14	78	e2.9	e15	34	e1.4	e11	78	e2.3
29	e13	83	e2.9	e14	29	e1.1	e12	80	e2.6
30	e12	88	e2.9	e14	43	e1.6	e11	80	e2.4
31	e11	90	e2.7	---	---	---	e10	80	e2.2
TOTAL	800	---	232.59	1245.4	---	1306.4	374	---	83.02

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	e10	80	e2.2	e15	28	e1.1	e40	105	e11
2	e11	80	e2.4	e13	13	e.46	e17	80	e3.7
3	e12	80	e2.6	e14	10	e.36	e11	40	e1.2
4	e11	73	e2.2	e15	26	e1.0	e8.6	14	e.31
5	e12	51	e1.6	e14	58	e2.2	e7.6	11	e.21
6	e11	28	e.83	e13	87	e3.1	e7.0	26	e.48
7	e13	21	e.74	e13	96	e3.4	e6.8	48	e.87
8	e13	24	e.83	e14	92	e3.5	e6.4	64	e1.1
9	e12	38	e1.2	e13	80	e2.8	e6.6	66	e1.2
10	e12	69	e2.2	e13	53	e1.8	e6.4	55	e1.2
11	e27	69	e5.0	e13	25	e.86	e6.8	74	e1.4
12	e24	35	e2.3	e12	13	e.41	e6.0	108	e1.8
13	e16	20	e.86	e12	19	e.60	e6.0	123	e2.0
14	e15	31	e1.3	e13	38	e1.3	e5.6	135	e2.0
15	e13	54	e1.9	e14	63	e2.4	e5.4	135	e2.0
16	e12	72	e2.3	e13	82	e2.9	e5.2	125	e1.8
17	e14	78	e2.9	e12	95	e3.1	e5.6	116	e1.8
18	e16	78	e3.4	e11	102	e3.0	e5.2	110	e1.5
19	e13	75	e2.6	e13	96	e3.4	e5.2	106	e1.5
20	e19	60	e3.1	e14	85	e3.2	e5.2	99	e1.4
21	e18	37	e1.8	e13	71	e2.5	e5.2	101	e1.4
22	e16	15	e.65	e13	53	e1.9	e5.2	107	e1.5
23	e14	7	e.28	e15	35	e1.4	e5.4	90	e1.3
24	e14	11	e.42	e14	19	e.70	e6.0	45	e.73
25	e14	15	e.57	e13	24	e.82	e5.6	15	e.23
26	e13	23	e.81	e12	58	e1.9	e5.4	10	e.14
27	e13	37	e1.3	e13	106	e3.7	e5.2	8	e.12
28	e14	57	e2.1	e15	121	e4.9	e5.2	5	e.08
29	e17	64	e2.9	---	---	---	e5.0	6	e.08
30	e14	50	e1.9	---	---	---	e5.0	19	e.25
31	e13	39	e1.4	---	---	---	e4.8	42	e.54
TOTAL	446	---	56.59	372	---	58.71	233.6	---	44.84

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	4.3	66	0.76	4.3	60	0.70	1.7	12	0.06
2	4.3	67	0.77	4.0	43	0.46	1.4	12	0.04
3	4.4	44	0.53	4.3	28	0.32	1.5	12	0.04
4	4.4	30	0.36	3.9	15	0.16	1.4	12	0.04
5	5.2	24	0.34	3.6	6	0.06	1.4	17	0.06
6	5.6	21	0.31	4.4	5	0.06	6.4	22	0.38
7	5.2	19	0.27	4.4	8	0.09	1.5	16	0.06
8	5.0	17	0.22	3.9	10	0.10	1.3	13	0.05
9	5.2	14	0.19	3.5	35	0.33	1.4	18	0.07
10	9.8	30	0.80	3.6	113	0.11	1.3	30	0.11
11	8.8	29	0.69	5.2	173	0.24	1.7	30	0.14
12	9.2	23	0.57	4.0	170	0.18	1.3	19	0.07
13	5.8	14	0.22	3.6	150	0.15	1.4	14	0.05
14	5.2	14	0.20	3.2	135	0.12	1.4	10	0.04
15	6.0	28	0.46	2.8	125	0.94	1.3	9	0.03
16	8.0	45	0.97	2.8	116	0.87	1.8	8	0.04
17	5.8	61	0.96	3.0	101	0.81	3.0	8	0.06
18	5.6	75	0.11	2.4	60	0.39	2.7	8	0.06
19	5.2	85	0.12	2.3	25	0.15	2.2	8	0.04
20	5.0	95	0.13	2.2	19	0.11	1.8	8	0.04
21	4.8	105	0.14	2.2	17	0.10	3.2	6	0.05
22	4.4	115	0.14	4.1	15	0.17	3.0	5	0.04
23	4.2	125	0.14	2.0	13	0.07	2.8	5	0.04
24	4.2	130	0.15	2.7	12	0.08	2.3	5	0.04
25	4.0	131	0.14	3.1	11	0.09	2.3	5	0.04
26	3.8	132	0.13	4.1	35	0.39	13	40	0.14
27	4.5	126	0.15	2.8	41	0.31	6.4	29	0.51
28	7.2	115	0.22	3.5	19	0.18	3.8	13	0.13
29	5.0	103	0.14	2.3	15	0.09	3.0	7	0.06
30	4.7	83	0.10	3.6	12	0.12	8.0	27	0.58
31	---	---	---	2.0	12	0.06	---	---	---
TOTAL	164.8	---	26.72	103.8	---	15.21	85.7	---	4.37

• Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	5.0	19	0.25	2.8	6	0.05	2.4	13	0.09
2	3.7	11	0.11	2.7	6	0.04	2.8	15	0.11
3	3.0	15	0.12	2.6	6	0.04	2.4	14	0.09
4	2.6	17	0.12	2.5	6	0.04	2.7	12	0.08
5	2.4	14	0.09	2.4	6	0.04	2.1	11	0.06
6	3.8	11	0.11	2.5	6	0.04	9.6	30	0.78
7	3.7	10	0.10	2.4	6	0.04	10	33	0.90
8	2.7	13	0.09	2.3	6	0.04	5.2	27	0.37
9	2.7	18	0.12	4.5	6	0.08	3.5	17	0.15
10	2.4	20	0.12	4.2	5	0.06	3.1	13	0.10
11	2.4	20	0.12	4.4	10	0.12	5.6	17	0.25
12	2.2	19	0.11	3.4	33	0.30	5.2	19	0.27
13	2.1	16	0.09	2.7	58	0.42	3.3	16	0.14
14	2.1	13	0.07	3.5	67	0.63	2.5	12	0.07
15	2.1	12	0.06	2.7	69	0.51	4.3	13	0.15
16	2.2	11	0.07	2.5	68	0.46	4.1	13	0.15
17	2.2	10	0.06	2.5	57	0.38	3.3	9	0.08
18	2.9	78	0.1	3.4	39	0.36	2.7	8	0.06
19	10	44	1.2	4.1	23	0.25	5.2	15	0.20
20	5.4	8	0.12	3.1	13	0.11	36	95	9.2
21	3.7	7	0.06	2.7	11	0.08	18	74	3.6
22	3.2	7	0.06	3.0	8	0.07	10	43	1.2
23	3.5	7	0.06	3.1	7	0.06	5.2	27	0.37
24	3.7	7	0.06	10	33	0.90	5.6	13	0.20
25	3.1	7	0.06	16	41	1.8	3.9	8	0.08
26	3.8	7	0.08	5.4	33	0.48	2.8	10	0.08
27	3.6	7	0.07	3.6	16	0.15	2.6	11	0.08
28	3.4	8	0.08	3.5	13	0.12	2.3	11	0.06
29	2.8	8	0.06	3.9	16	0.16	2.0	11	0.06
30	2.7	7	0.06	3.3	15	0.13	2.4	11	0.08
31	2.7	7	0.06	2.7	12	0.08	---	---	---
TOTAL	127.9	---	9.94	118.4	---	8.04	170.8	---	19.11
YEAR	4242.4		1865.54						

• Estimated

RIO GRANDE DE LOIZA BASIN
 50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
17...	1305	54	189	28	88
APR 1994					
20...	1712	5.0	421	5.7	84
JUN					
10...	1615	1.3	69	0.24	82
SEP					
05...	1646	2.1	77	0.44	96

RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'11", long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas plaza.

DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCOCCI (COLS. PER 100 ML)
OCT 1993											
08...	0930	34	506	6.8	29.0	340	3.2	41	72	330000	80000
DEC											
07...	1040	37	575	7.6	26.0	21	4.0	49	41	75000	28000
FEB 1994											
17...	0945	20	650	7.2	25.0	160	1.8	21	95	33000	39000
APR											
05...	0840	15	672	7.2	27.0	200	0.4	5	110	240000	540000
JUN											
17...	0850	29	522	7.1	27.5	92	1.8	22	72	K92000	76000
AUG											
05...	0745	6.5	864	7.2	27.0	150	0.4	5	85	46000	1000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
08...	140	37	12	32	1	5.6	120	<0.5	33	37	0.30
DEC											
07...	--	--	--	--	--	--	120	--	--	--	--
FEB 1994											
17...	--	--	--	--	--	--	180	--	--	--	--
APR											
05...	150	40	13	59	2	8.4	210	<0.5	53	70	0.20
JUN											
17...	--	--	--	--	--	--	130	--	--	--	--
AUG											
05...	190	51	15	82	3	11	205	--	74	95	0.30

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
08...	32	261	24.0	538	13	1.40	<1	100	50	2	21
DEC											
07...	--	--	--	226	11	1.90	--	--	--	--	--
FEB 1994											
17...	--	--	--	602	15	3.50	--	--	--	--	--
APR											
05...	36	406	16.2	740	18	4.00	<1	<100	60	1	<10
JUN											
17...	--	--	--	704	9.8	1.60	--	--	--	--	--
AUG											
05...	39	490	8.55	290	13	2.20	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Bairoa Housing Area, 1.6 mi (2.6 km) northwest of Plaza de Caguas, 4.1 mi (6.6 km) east of Plaza de Aguas Buenas, and 0.9 mi (1.4 km) northwest of Escuela Pepita Garriga.

DRAINAGE AREA.--5.08 mi² (13.15 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Mean daily discharge affected by domestic discharge from nearby station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e3.7	4.4	4.6	5.4	4.1	3.1	3.2	2.5	3.8	4.2	4.0	4.5
2	e11	4.3	4.6	6.0	3.8	3.2	3.2	2.5	3.9	3.7	3.8	4.1
3	e14	4.3	4.5	5.7	3.7	2.9	3.2	2.5	4.3	4.0	3.5	3.9
4	e7.4	4.3	4.5	5.4	3.8	2.8	3.2	2.5	3.9	3.9	3.6	3.7
5	5.3	4.3	4.6	5.7	3.2	2.8	3.5	2.7	3.9	4.2	3.3	2.9
6	5.1	4.3	4.5	5.5	3.0	2.8	3.2	2.6	6.6	6.9	3.3	8.3
7	7.6	4.5	4.4	5.5	2.9	2.8	2.6	2.5	4.0	4.5	3.3	4.1
8	5.3	4.6	4.4	5.5	3.3	2.8	2.7	2.3	4.1	3.8	4.2	3.5
9	4.9	5.0	4.4	5.7	3.9	2.9	2.3	2.6	3.6	3.7	4.2	4.3
10	4.9	4.7	4.4	5.6	3.8	3.0	2.6	3.7	3.3	3.5	4.9	6.1
11	4.9	5.1	4.5	6.1	3.8	2.7	3.6	3.0	3.5	3.6	5.1	6.1
12	5.9	4.7	4.5	5.9	3.7	2.7	4.9	2.8	3.6	3.7	4.6	4.3
13	5.4	4.9	4.5	6.2	3.6	2.7	2.9	2.7	3.3	3.6	4.4	3.1
14	5.5	7.1	4.5	6.7	3.6	2.7	3.3	2.6	2.9	3.5	5.3	3.3
15	5.5	8.0	4.6	6.5	3.4	2.7	4.3	2.4	4.8	3.6	4.6	4.3
16	16	13	4.6	6.6	3.3	2.7	3.2	2.2	4.8	3.8	4.6	3.9
17	6.5	8.3	4.6	6.9	3.3	2.7	2.7	2.6	7.0	3.7	4.4	4.1
18	5.0	11	5.5	6.2	3.1	2.7	2.5	2.9	4.3	17	6.8	3.4
19	4.8	7.0	5.4	6.1	3.0	2.8	2.4	3.0	3.3	4.7	5.3	8.1
20	4.6	7.1	4.8	8.2	3.6	3.0	2.4	3.0	3.6	4.0	5.2	33
21	4.6	5.7	7.2	6.9	3.0	3.0	2.3	3.0	4.0	3.7	4.4	8.9
22	4.9	5.2	6.8	6.2	3.1	2.8	2.2	2.9	3.3	3.8	4.4	4.6
23	4.5	5.0	5.0	5.6	3.0	2.8	2.3	2.8	3.1	3.8	4.6	5.2
24	4.3	5.0	5.0	5.4	3.2	2.8	2.2	3.2	3.0	3.7	25	4.2
25	4.2	5.1	4.7	5.0	3.2	2.8	2.2	2.9	3.3	3.7	13	3.1
26	4.2	5.3	4.5	4.7	3.3	2.8	2.3	3.2	9.8	3.6	6.6	2.9
27	4.2	4.9	6.8	4.3	4.1	2.9	5.0	3.4	3.9	3.8	5.4	2.8
28	4.3	4.8	6.1	4.8	3.1	3.0	3.2	4.0	4.1	3.8	5.2	2.6
29	4.4	4.8	5.5	5.0	---	3.1	2.5	3.7	3.6	3.8	5.0	2.5
30	4.3	4.8	5.5	4.2	---	3.2	2.5	4.0	5.6	3.6	4.1	13
31	4.2	---	5.3	4.0	---	3.2	---	3.5	---	3.9	3.8	---
TOTAL	181.4	171.5	154.8	177.5	95.9	88.9	88.6	90.2	126.2	134.8	169.9	168.8
MEAN	5.85	5.72	4.99	5.73	3.42	2.87	2.95	2.91	4.21	4.35	5.48	5.63
MAX	16	13	7.2	8.2	4.1	3.2	5.0	4.0	9.8	17	25	33
MIN	3.7	4.3	4.4	4.0	2.9	2.7	2.2	2.2	2.9	3.5	3.3	2.5
MRD	4.9	4.9	4.6	5.7	3.3	2.8	2.7	2.8	3.9	3.8	4.6	4.1
AC-FT	360	340	307	352	190	176	176	179	250	267	337	335
CFSM	1.15	1.13	.98	1.13	.67	.56	.58	.57	.83	.86	1.08	1.11
IN.	1.33	1.26	1.13	1.30	.70	.65	.65	.66	.92	.99	1.24	1.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

	MEAN	10.8	11.2	9.90	8.81	4.99	3.81	4.13	6.91	5.50	9.29	6.12	7.64
MAX	25.3	22.2	19.7	13.6	8.60	5.18	7.20	12.5	8.64	16.5	7.64	10.6	
(WY)	1991	1993	1993	1992	1991	1991	1993	1993	1993	1991	1992	1993	
MIN	4.30	5.72	4.63	5.73	3.42	2.87	2.61	2.91	4.21	4.35	4.09	4.50	
(WY)	1992	1994	1992	1994	1994	1994	1992	1994	1994	1994	1991	1991	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1991 - 1994
ANNUAL TOTAL	2765.0	1648.5	
ANNUAL MEAN	7.58	4.52	7.45
HIGHEST ANNUAL MEAN			10.3
LOWEST ANNUAL MEAN			4.52
HIGHEST DAILY MEAN	112	Sep 18	337
LOWEST DAILY MEAN	2.7	Apr 3	2.1
ANNUAL SEVEN-DAY MINIMUM	2.9	Apr 1	2.2
INSTANTANEOUS PEAK FLOW			123
INSTANTANEOUS PEAK STAGE		6.79	1580
ANNUAL RUNOFF (AC-FT)	5480	3270	12.32
ANNUAL RUNOFF (CFSM)	1.49	.89	5390
ANNUAL RUNOFF (INCHES)	20.25	12.07	1.47
10 PERCENT EXCEEDS	12	6.3	19.91
50 PERCENT EXCEEDS	5.7	4.0	10
90 PERCENT EXCEEDS	3.6	2.7	4.5
			2.9

e Estimated

RIO GRANDE DE LOIZA BASIN
50055390 RIO BAIROA AT BAIROA, PR--Continued
WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to September 1994.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,310 mg/L Dec. 26, 1992; Minimum daily mean, 1 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 3,910 tons (3,550 tonnes) Dec. 26, 1992; Minimum daily mean, <0.0 ton (<0.1 tonne) Several days.

EXTREMES FOR WATER YEARS 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 278 mg/L Sep. 20, 1994; Minimum daily mean, 1 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 53 tons (48 tonnes) Sep. 20, 1994; Minimum daily mean, <0.01 ton (<0.1 tonne) Several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	3.7	8	0.08	4.4	8	.11	4.6	11	.15
2	11	77	5.8	4.3	7	.09	4.6	26	.33
3	14	85	6.0	4.3	6	.07	4.5	51	.62
4	7.4	132	2.9	4.3	5	.06	4.5	70	.84
5	5.3	103	1.5	4.3	5	.06	4.6	62	.76
6	5.1	88	1.2	4.3	5	.06	4.5	45	.54
7	7.6	68	1.6	4.5	5	.06	4.4	33	.39
8	5.3	29	.42	4.6	5	.06	4.4	19	.22
9	4.9	14	.18	5.0	6	.08	4.4	9	.10
10	4.9	11	.15	4.7	8	.09	4.4	10	.11
11	4.9	11	.14	5.1	15	.21	4.5	10	.12
12	5.9	10	.17	4.7	11	.14	4.5	10	.12
13	5.4	9	.13	4.9	6	.09	4.5	10	.12
14	5.5	8	.13	7.1	21	.46	4.5	9	.11
15	5.5	10	.14	8.0	31	.80	4.6	7	.09
16	16	120	17	13	54	2.4	4.6	6	.08
17	6.5	142	2.6	8.3	149	6.2	4.6	7	.09
18	5.0	95	1.3	11	41	1.7	5.5	12	.20
19	4.8	72	.93	7.0	19	.39	5.4	16	.33
20	4.6	51	.64	7.1	88	2.4	4.8	11	.14
21	4.6	28	.36	5.7	94	1.5	7.2	24	.83
22	4.9	15	.21	5.2	80	1.1	6.8	18	.54
23	4.5	5	.07	5.0	69	.93	5.0	3	.05
24	4.3	3	.04	5.0	60	.80	5.0	3	.04
25	4.2	4	.05	5.1	49	.69	4.7	3	.04
26	4.2	5	.06	5.3	25	.35	4.5	4	.04
27	4.2	6	.06	4.9	11	.14	6.8	20	.52
28	4.3	6	.07	4.8	11	.14	6.1	15	.24
29	4.4	6	.07	4.8	11	.14	5.5	13	.19
30	4.3	6	.07	4.8	11	.14	5.5	11	.16
31	4.2	7	.08	---	---	---	5.3	9	.12
TOTAL	181.4	---	44.15	171.5	---	21.46	154.8	---	8.23

* Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	5.4	6	.09	4.1	4	.04	3.1	6	.04
2	6.0	15	.27	3.8	30	.30	3.2	5	.04
3	5.7	14	.22	3.7	12	.12	2.9	7	.06
4	5.4	13	.19	3.8	16	.18	2.8	10	.07
5	5.7	12	.17	3.2	16	.14	2.8	11	.09
6	5.5	12	.18	3.0	14	.13	2.8	11	.08
7	5.5	12	.18	2.9	12	.10	2.8	9	.07
8	5.5	12	.17	3.3	10	.10	2.8	7	.05
9	5.7	19	.29	3.9	9	.09	2.9	6	.04
10	5.6	29	.43	3.8	7	.07	3.0	8	.07
11	6.1	40	.67	3.8	5	.05	2.7	4	.03
12	5.9	51	.82	3.7	3	.02	2.7	5	.04
13	6.2	44	.72	3.6	6	.05	2.7	5	.04
14	6.7	26	.45	3.6	9	.09	2.7	6	.05
15	6.5	11	.18	3.4	12	.11	2.7	7	.06
16	6.6	17	.35	3.3	7	.07	2.7	7	.06
17	6.9	12	.23	3.3	5	.05	2.7	8	.06
18	6.2	7	.12	3.1	3	.03	2.7	8	.06
19	6.1	3	.06	3.0	2	.01	2.8	9	.07
20	8.2	18	.52	3.6	4	.06	3.0	5	.05
21	6.9	16	.32	3.0	3	.04	3.0	3	.02
22	6.2	5	.07	3.1	4	.02	2.8	4	.03
23	5.6	4	.07	3.0	9	.07	2.8	4	.03
24	5.4	15	.21	3.2	5	.04	2.8	6	.04
25	5.0	34	.46	3.2	6	.06	2.8	6	.04
26	4.7	45	.57	3.3	7	.06	2.8	5	.04
27	4.3	31	.36	4.1	17	.33	2.9	5	.04
28	4.8	28	.44	3.1	6	.05	3.0	4	.04
29	5.0	82	1.2	---	---	---	3.1	4	.02
30	4.2	26	.30	---	---	---	3.2	5	.05
31	4.0	9	.09	---	---	---	3.2	7	.07
TOTAL	177.5	---	10.40	95.9	---	2.48	88.9	---	1.55

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	3.2	11	.09	2.5	2	.02	3.8	3	.02
2	3.2	13	.11	2.5	2	.02	3.9	11	.11
3	3.2	13	.12	2.5	3	.02	4.3	6	.08
4	3.2	13	.12	2.5	3	.02	3.9	4	.04
5	3.5	19	.19	2.7	2	<.01	3.9	3	.02
6	3.2	18	.15	2.6	2	.01	6.6	24	1.3
7	2.6	15	.10	2.5	1	<.01	4.0	7	.08
8	2.7	15	.12	2.3	1	<.01	4.1	4	.06
9	2.3	16	.10	2.6	3	.02	3.6	3	.03
10	2.6	15	.11	3.7	17	.40	3.3	3	<.01
11	3.6	24	.25	3.0	4	.04	3.5	2	<.01
12	4.9	23	.34	2.8	4	.03	3.6	2	<.01
13	2.9	6	.04	2.7	5	.04	3.3	2	.02
14	3.3	8	.10	2.6	5	.04	2.9	1	<.01
15	4.3	16	.40	2.4	5	.04	4.8	5	.08
16	3.2	10	.10	2.2	5	.03	4.8	1	<.01
17	2.7	8	.07	2.6	4	.03	7.0	28	.91
18	2.5	7	.05	2.9	4	.03	4.3	4	.05
19	2.4	6	.04	3.0	4	.04	3.3	2	.02
20	2.4	4	.02	3.0	4	.03	3.6	1	<.01
21	2.3	4	.02	3.0	2	.02	4.0	1	<.01
22	2.2	3	.01	2.9	3	.02	3.3	1	<.01
23	2.3	4	.02	2.8	2	.01	3.1	1	<.01
24	2.2	3	.02	3.2	2	.01	3.0	1	<.01
25	2.2	3	.02	2.9	1	.01	3.3	1	<.01
26	2.3	3	.02	3.2	1	<.01	9.8	58	6.6
27	5.0	12	.50	3.4	1	<.01	3.9	9	.09
28	3.2	9	.09	4.0	1	<.01	4.1	12	.22
29	2.5	4	.03	3.7	2	.02	3.6	10	.11
30	2.5	2	.02	4.0	4	.02	5.6	20	.57
31	---	---	---	3.5	4	.04	---	---	---
TOTAL	88.6	---	3.37	90.2	---	1.01	126.2	---	10.41

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	4.2	8	.11	4.0	2	<.01	4.5	31	.38
2	3.7	3	.02	3.8	2	.02	4.1	14	.17
3	4.0	2	.02	3.5	2	.02	3.9	4	.04
4	3.9	2	.02	3.6	3	.03	3.7	6	.07
5	4.2	2	.02	3.3	4	.04	2.9	5	.02
6	6.9	122	3.2	3.3	5	.04	8.3	39	3.5
7	4.5	11	.14	3.3	4	.04	4.1	10	.12
8	3.8	10	.10	4.2	3	.02	3.5	14	.13
9	3.7	9	.10	4.2	2	.02	4.3	21	.24
10	3.5	8	.06	4.9	6	.13	6.1	31	.62
11	3.6	5	.05	5.1	10	.14	6.1	14	.29
12	3.7	3	.03	4.6	9	.10	4.3	10	.09
13	3.6	1	.01	4.4	8	.09	3.1	8	.07
14	3.5	3	.03	5.3	13	.31	3.3	3	.02
15	3.6	8	.08	4.6	7	.09	4.3	8	.13
16	3.8	10	.11	4.6	4	.06	3.9	7	.09
17	3.7	8	.08	4.4	3	.02	4.1	39	.71
18	17	109	15	6.8	18	.53	3.4	6	.05
19	4.7	8	.11	5.3	12	.17	8.1	60	8.1
20	4.0	4	.05	5.2	8	.12	33	278	53
21	3.7	5	.04	4.4	4	.04	8.9	51	3.6
22	3.8	5	.04	4.4	4	.05	4.6	11	.14
23	3.8	6	.05	4.6	3	.03	5.2	15	.31
24	3.7	6	.06	25	203	42	4.2	17	.23
25	3.7	5	.05	13	187	8.4	3.1	10	.09
26	3.6	4	.04	6.6	120	2.2	2.9	10	.07
27	3.8	3	.02	5.4	75	1.1	2.8	9	.06
28	3.8	3	.02	5.2	56	.78	2.6	7	.05
29	3.8	3	.04	5.0	53	.72	2.5	6	.04
30	3.6	3	.02	4.1	49	.56	13	99	21
31	3.9	2	<.01	3.8	44	.46	---	---	---
TOTAL	134.8	---	19.72	169.9	---	58.33	168.8	---	93.43
YEAR	1648.5		274.54						

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1993 02...	1650	4.3	5470	64	33	42	64

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1993 02...	77	86	96	99	99.5	99.8	99.9

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
20...	1658	11	569	17	99
SEP 1994					
17...	1345	11	467	14	47
21...	1711	8.5	106	2.4	92

RIO GRANDE DE LOIZA BASIN

50055400 RIO BAIROA NEAR CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'28", long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loíza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA.--5.4 mi² (14.0 km²).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPR- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
08...	1145	2.7	350	7.7	29.0	1.8	5.5	100	10	41000	9500
DEC											
07...	1210	3.0	425	7.6	29.5	40	5.0	65	43	8900	8200
FEB 1994											
17...	1130	3.5	430	8.3	25.0	1.0	9.6	114	<10	7700	960
APR											
05...	1030	2.8	432	7.4	27.0	--	4.0	49	--	33000	19000
JUN											
17...	0950	2.8	352	7.0	27.5	1.0	2.0	25	14	K14000	K17000
AUG											
05...	0850	1.3	442	7.0	27.0	0.40	0.4	5	<10	27000	8000

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
08...	140	34	13	19	0.7	4.3	130	<0.5	15	26	0.20
DEC											
07...	--	--	--	--	--	--	150	--	--	--	--
FEB 1994											
17...	--	--	--	--	--	--	150	--	--	--	--
APR											
05...	--	--	--	--	--	--	150	--	--	--	--
JUN											
17...	--	--	--	--	--	--	120	--	--	--	--
AUG											
05...	160	38	15	26	0.9	3.7	140	--	15	42	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
08...	29	218	1.59	14	0.30	0.250	2	<100	30	<1	<1
DEC											
07...	--	--	--	59	12	2.00	--	--	--	--	--
FEB 1994											
17...	--	--	--	31	0.30	0.470	--	--	--	--	--
APR											
05...	--	--	--	12	2.4	0.640	<1	<100	20	<1	<1
JUN											
17...	--	--	--	2	0.30	0.330	--	--	--	--	--
AUG											
05...	31	255	0.88	3	0.40	0.250	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi² (57.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low-flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96m) upstream from gaging station since 1990.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e37	8.0	21	10	e9.7	e47	7.1	5.6	4.0	13	14	5.8
2	e22	7.6	16	18	e8.2	e56	6.5	5.1	3.8	5.6	11	13
3	e16	7.1	14	12	e10	21	6.2	4.6	63	4.6	8.5	20
4	e15	6.7	13	10	9.2	15	5.8	5.7	19	4.2	6.5	15
5	e12	6.6	17	9.6	12	15	5.7	6.8	6.4	3.8	6.2	7.0
6	e22	6.6	15	8.1	8.9	30	5.7	15	119	3.8	6.2	32
7	e24	6.2	13	7.5	8.0	26	7.8	8.9	9.2	8.4	5.8	28
8	e19	6.5	12	7.3	7.8	14	11	32	4.6	6.8	8.5	14
9	e12	11	11	8.0	7.5	29	7.1	72	4.5	4.5	7.6	11
10	e10	13	11	8.0	7.3	28	6.0	197	4.2	4.0	9.0	12
11	e13	9.3	10	16	7.4	19	31	42	8.6	3.8	19	26
12	e14	7.6	9.5	21	7.2	21	24	17	12	3.3	10	11
13	e10	6.6	9.8	15	7.1	16	10	17	5.2	3.5	7.3	8.9
14	e8.4	24	12	20	7.5	12	7.7	14	4.5	3.8	6.2	7.6
15	7.9	141	14	11	11	10	13	16	9.9	4.2	5.8	9.7
16	8.3	769	10	10	8.5	9.4	23	64	14	4.2	5.4	18
17	17	103	9.3	9.7	7.6	9.2	9.9	88	73	5.0	5.3	21
18	17	384	10	e14	8.4	8.5	13	13	24	26	5.8	11
19	11	224	10	e11	22	8.3	8.3	10	8.9	16	40	49
20	18	56	16	e9.0	339	7.9	6.5	7.9	6.2	8.8	11	839
21	17	39	12	e11	57	7.9	5.7	6.6	4.7	7.1	7.4	73
22	21	23	10	e11	37	7.7	5.1	6.2	4.4	6.1	5.7	28
23	30	18	9.3	e10	33	6.9	4.9	5.8	4.6	5.4	5.6	20
24	19	20	8.9	e8.2	32	7.5	5.0	4.9	4.4	5.3	21	20
25	13	19	8.8	e8.2	20	6.9	4.9	4.7	4.2	5.3	41	16
26	25	85	8.4	e10	29	14	4.5	4.6	5.4	5.3	10	15
27	13	34	8.0	e8.0	29	8.2	4.6	4.2	6.3	5.3	8.2	14
28	41	22	22	e7.0	15	7.6	25	3.7	4.2	5.3	28	12
29	17	18	13	e20	---	7.6	10	3.4	4.5	6.4	27	11
30	11	34	10	e16	---	9.1	6.8	3.4	22	9.1	9.8	9.8
31	9.3	---	9.3	e9.8	---	9.0	---	3.7	---	11	7.1	---
TOTAL	529.9	2115.8	373.3	354.4	766.3	494.7	291.8	692.8	468.7	208.9	369.9	1377.8
MEAN	17.1	70.5	12.0	11.4	27.4	16.0	9.73	22.3	15.6	6.74	11.9	45.9
MAX	41	769	22	21	339	56	31	197	119	26	41	839
MIN	7.9	6.2	8.0	7.0	7.1	6.9	4.5	3.4	3.8	3.3	5.3	5.8
AC-FT	1050	4200	740	703	1520	981	579	1370	930	414	734	2730
CFSM	.77	3.16	.54	.51	1.23	.72	.44	1.00	.70	.30	.54	2.06
IN.	.88	3.53	.62	.59	1.28	.83	.49	1.16	.78	.35	.62	2.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994
MEAN	52.7	79.2	35.2	36.4	23.6
MAX	161	109	59.0	65.8	44.0
(WY)	1991	1992	1991	1992	1991
MIN	4.01	35.5	12.0	11.4	10.4
(WY)	1993	1991	1994	1994	1993

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	13881.6	8044.3	
ANNUAL MEAN	38.0	22.0	
HIGHEST ANNUAL MEAN			39.6
LOWEST ANNUAL MEAN			52.3
HIGHEST DAILY MEAN	1710	Jul 11	1992
LOWEST DAILY MEAN	1.3	May 22	1994
ANNUAL SEVEN-DAY MINIMUM	2.2	May 17	1994
INSTANTANEOUS PEAK FLOW			1710
INSTANTANEOUS PEAK STAGE			Jul 11 1993
ANNUAL RUNOFF (AC-FT)	27530	15960	1.1
ANNUAL RUNOFF (CFSM)	1.71	.99	Oct 27 1992
ANNUAL RUNOFF (INCHES)	23.16	13.42	1.4
10 PERCENT EXCEEDS	56	30	Oct 22 1992
50 PERCENT EXCEEDS	11	10	5870
90 PERCENT EXCEEDS	5.0	4.9	Nov 8 1991
			17.38
			Nov 8 1991
			28680
			1.78
			24.12
			72
			11
			4.1

e Estimated

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1994.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,000 mg/L Oct. 21, 1990; Minimum daily mean, 4 mg/L April 7, 1991.

SEDIMENT LOADS: Maximum daily mean, 7,110 tons (6,450 tonnes) Nov. 08, 1991; Minimum daily mean, 0.05 ton (0.3 tonne) several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 485 mg/L Sep. 20, 1994; Minimum daily mean, 9 mg/L Apr. 09-10, 1994.

SEDIMENT LOADS: Maximum daily mean, 1,790 tons (1,620 tonnes) Nov. 20, 1994; Minimum daily mean, 0.14 ton (0.13 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	e37	114	e13	8.0	32	.70	21	61	3.7
2	e22	78	e4.7	7.6	30	.60	16	49	2.1
3	e16	52	e2.3	7.1	30	.58	14	43	1.6
4	e15	48	e1.9	6.7	29	.54	13	36	1.3
5	e12	44	e1.5	6.6	27	.47	17	31	1.4
6	e22	61	e3.9	6.6	27	.47	15	25	1.0
7	e24	67	e5.3	6.2	33	.56	13	20	.71
8	e19	63	e3.4	6.5	42	.80	12	20	.61
9	e12	60	e1.9	11	53	1.5	11	21	.64
10	e10	60	e1.6	13	61	2.1	11	22	.68
11	e13	59	e2.1	9.3	71	1.8	10	24	.66
12	e14	58	e2.2	7.6	79	1.6	9.5	25	.64
13	e10	56	e1.5	6.6	81	1.5	9.8	27	.70
14	e8.4	42	e1.1	24	80	5.8	12	34	1.2
15	7.9	30	.66	141	171	72	14	42	1.8
16	8.3	30	.66	769	447	1760	10	26	.73
17	17	45	2.3	103	160	54	9.3	22	.55
18	17	52	2.7	384	313	631	10	22	.57
19	11	40	1.2	224	247	237	10	22	.60
20	18	54	2.8	56	109	19	16	41	1.8
21	17	52	2.8	39	88	11	12	45	1.6
22	21	61	3.9	23	63	4.0	10	38	1.0
23	30	76	7.2	18	42	2.1	9.3	34	.85
24	19	58	3.2	20	23	1.2	8.9	31	.73
25	13	46	1.8	19	22	1.1	8.8	29	.68
26	25	67	5.4	85	125	48	8.4	29	.65
27	13	44	1.6	34	98	10	8.0	27	.61
28	41	89	14	22	72	4.4	22	60	4.1
29	17	69	3.6	18	56	2.9	13	46	1.8
30	11	42	1.4	34	80	9.7	10	34	.96
31	9.3	37	.98	---	---	---	9.3	21	.52
TOTAL	529.9	---	102.60	2115.8	---	2886.42	373.3	---	36.49

e Estimated

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	10	23	.76	e9.7	29	e.76	e47	70	e8.9
2	18	53	2.5	e8.2	27	e.59	e56	102	e15
3	12	43	1.5	e10	23	e.61	21	78	4.7
4	10	29	.77	9.2	19	.49	15	56	2.3
5	9.6	20	.50	12	33	1.1	15	54	2.3
6	8.1	22	.50	8.9	20	.48	30	71	11
7	7.5	27	.55	8.0	20	.43	26	69	5.9
8	7.3	30	.59	7.8	20	.42	14	47	2.0
9	8.0	30	.62	7.5	20	.40	29	72	6.8
10	8.0	30	.67	7.3	20	.39	28	68	5.3
11	16	48	2.5	7.4	20	.40	19	55	2.8
12	21	61	3.6	7.2	20	.39	21	58	3.6
13	15	50	2.2	7.1	19	.36	16	53	2.4
14	20	67	3.9	7.5	17	.34	12	32	1.1
15	11	63	2.0	11	12	.38	10	20	.56
16	10	61	1.6	8.5	12	.28	9.4	19	.49
17	9.7	58	1.6	7.6	11	.22	9.2	17	.41
18	e14	47	e1.6	8.4	27	.67	8.5	14	.31
19	e11	32	e.95	22	56	5.5	8.3	12	.25
20	e9.0	23	e.56	339	288	552	7.9	11	.24
21	e11	21	e.63	57	109	27	7.9	11	.23
22	e11	25	e.75	37	79	8.0	7.7	10	.21
23	e10	45	e1.2	33	80	8.8	6.9	10	.20
24	e8.2	68	e1.5	32	70	6.7	7.5	10	.20
25	e8.2	78	e1.7	20	34	1.8	6.9	10	.20
26	e10	47	e1.3	29	47	5.7	14	90	4.0
27	e8.0	87	e1.9	29	73	6.6	8.2	67	1.6
28	e7.0	89	e1.7	15	49	2.1	7.6	59	1.2
29	e20	90	e4.9	---	---	---	7.6	57	1.3
30	e16	75	e3.2	---	---	---	9.1	55	1.3
31	e9.8	45	e1.2	---	---	---	9.0	51	1.2
TOTAL	354.4	---	49.45	766.3	---	632.91	494.7	---	88.00

e Estimated

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	7.1	41	.80	5.6	52	.80	4.0	25	.26
2	6.5	38	.67	5.1	51	.71	3.8	42	.42
3	6.2	32	.52	4.6	49	.62	63	79	.46
4	5.8	24	.38	5.7	47	.73	19	54	3.7
5	5.7	19	.29	6.8	45	.85	6.4	29	.52
6	5.7	16	.25	15	47	1.8	119	137	169
7	7.8	11	.22	8.9	34	.80	9.2	34	.91
8	11	22	.73	32	61	12	4.6	24	.33
9	7.1	9	.18	72	124	33	4.5	21	.24
10	6.0	9	.15	197	270	305	4.2	49	.60
11	31	58	8.6	42	93	15	8.6	27	1.2
12	24	65	4.7	17	55	2.8	12	42	1.6
13	10	42	1.3	17	52	2.6	5.2	24	.35
14	7.7	33	.72	14	48	2.0	4.5	20	.23
15	13	42	1.4	16	51	2.5	9.9	31	1.5
16	23	48	4.2	64	78	79	14	45	2.0
17	9.9	18	.58	88	134	71	73	122	.47
18	13	44	1.5	13	49	1.8	24	65	4.9
19	8.3	40	.91	10	33	.91	8.9	34	.86
20	6.5	40	.71	7.9	22	.49	6.2	28	.48
21	5.7	40	.62	6.6	19	.33	4.7	23	.30
22	5.1	41	.56	6.2	20	.33	4.4	21	.26
23	4.9	42	.54	5.8	20	.31	4.6	20	.24
24	5.0	42	.57	4.9	20	.27	4.4	19	.22
25	4.9	42	.56	4.7	20	.26	4.2	18	.20
26	4.5	42	.51	4.6	20	.25	5.4	23	.36
27	4.6	42	.56	4.2	20	.23	6.3	26	.46
28	25	68	6.3	3.7	30	.29	4.2	12	.14
29	10	56	1.6	3.4	40	.39	4.5	22	.28
30	6.8	54	1.0	3.4	40	.36	22	79	7.2
31	---	---	---	3.7	40	.39	---	---	---
TOTAL	291.8	---	41.63	692.8	---	537.82	468.7	---	291.76

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	JULY			AUGUST			SEPTEMBER		
1	13	119	4.5	14	50	1.9	5.8	33	.53
2	5.6	55	.97	11	50	1.4	13	42	1.8
3	4.6	23	.28	8.5	50	1.1	20	36	2.5
4	4.2	21	.23	6.5	50	.89	15	41	2.1
5	3.8	20	.21	6.2	48	.80	7.0	28	.55
6	3.8	20	.21	6.2	45	.76	32	66	9.7
7	8.4	29	.70	5.8	42	.68	28	70	7.0
8	6.8	12	.24	8.5	42	1.1	14	45	1.8
9	4.5	11	.14	7.6	33	.74	11	39	1.2
10	4.0	14	.14	9.0	35	.93	12	36	1.3
11	3.8	17	.16	19	54	2.8	26	68	5.4
12	3.3	18	.17	10	43	1.2	11	44	1.4
13	3.5	19	.18	7.3	42	.82	8.9	40	.95
14	3.8	20	.21	6.2	41	.70	7.6	35	.73
15	4.2	20	.23	5.8	40	.64	9.7	35	.90
16	4.2	20	.23	5.4	40	.59	18	53	2.5
17	5.0	20	.25	5.3	39	.56	21	31	2.2
18	26	61	6.4	5.8	39	.62	11	20	.58
19	16	52	2.6	40	86	13	49	51	36
20	8.8	35	.90	11	39	1.2	839	485	1790
21	7.1	26	.51	7.4	30	.61	73	129	30
22	6.1	20	.34	5.7	26	.41	28	52	4.1
23	5.4	18	.27	5.6	25	.37	20	31	1.7
24	5.3	22	.31	21	57	3.7	20	25	1.3
25	5.3	29	.41	41	89	15	16	21	.94
26	5.3	35	.50	10	38	1.1	15	20	.84
27	5.3	40	.57	8.2	28	.63	14	20	.78
28	5.3	42	.60	28	59	11	12	20	.65
29	6.4	47	.81	27	70	6.7	11	20	.60
30	9.1	50	1.2	9.8	38	1.0	9.8	20	.54
31	11	50	1.4	7.1	30	.58	---	---	---
TOTAL	208.9	---	25.87	369.9	---	73.53	1377.8	---	1910.59
YEAR	8044.3		6677.07						

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM	
MAY 1994								
10...	1545	1140	1720	5290	60	65	74	
JUN								
06...	0656	119	1180	380	63	68	76	
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
MAY 1994								
10...	81	88	94	98.8	99.8	99.9	100	
JUN								
06...	82	87	95	99	99.6	99.8	100	

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
15...	2120	318	158	136	90
16...	1312	388	213	223	89
MAY 1994					
10...	1805	453	802	981	98
AUG					
13...	1021	7.6	29	0.60	78
SEP					
19...	2248	456	315	388	98
20...	0238	360	241	234	97

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION---Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos.

DRAINAGE AREA---16.4 mi² (42.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD---January 1971 to current year.

GAGE---Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS---Records poor. Minor diversion from public water supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD---Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft³/s (1,050 m³/s), Oct. 9, 1970, 18,200 ft³/s (515 m³/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	12	28	18	14	18	8.5	2.9	2.6	8.4	3.5	4.6
2	29	12	23	16	14	18	8.1	2.6	2.2	3.0	2.1	32
3	22	12	20	16	14	16	8.0	2.8	1.7	3.2	1.8	18
4	21	12	20	14	15	14	7.7	3.8	1.7	2.5	1.5	22
5	21	11	20	18	14	13	7.2	3.4	1.8	2.2	2.6	8.8
6	70	11	20	15	13	13	7.0	3.6	8.0	2.4	3.6	142
7	28	11	18	14	12	12	9.1	2.9	3.3	3.9	2.2	45
8	23	14	17	14	12	13	9.1	3.0	2.2	3.2	1.8	14
9	19	16	18	16	12	18	4.2	6.2	2.6	2.5	1.5	26
10	18	20	17	24	11	69	5.8	45	2.7	2.2	6.9	17
11	17	13	16	16	12	18	6.4	9.3	3.4	2.1	6.6	28
12	25	11	16	16	12	78	6.2	5.4	2.9	1.6	4.0	9.9
13	24	12	16	20	11	20	5.0	12	2.4	1.5	3.1	8.9
14	16	14	16	36	13	15	4.6	8.6	1.9	1.5	2.7	8.9
15	15	17	15	18	14	13	4.6	5.9	5.8	1.4	2.3	187
16	30	324	15	16	11	13	4.4	4.7	6.5	1.4	2.0	88
17	21	42	14	16	11	12	4.2	4.2	7.6	2.6	1.5	29
18	15	292	19	17	13	12	4.2	3.8	5.6	66	12	18
19	17	182	15	15	66	12	3.9	3.5	3.3	6.9	8.8	24
20	15	259	15	15	254	12	3.4	3.1	2.6	2.9	5.0	1240
21	15	88	16	16	34	11	3.2	3.2	2.7	2.4	3.8	75
22	16	36	18	15	21	11	4.8	3.1	2.4	1.9	3.6	27
23	34	28	15	13	37	11	3.3	3.5	2.0	1.6	3.3	17
24	17	32	15	14	35	11	3.2	3.0	1.9	1.4	5.0	20
25	13	31	15	13	32	9.6	3.0	3.0	2.4	1.5	16	14
26	28	91	14	18	20	29	2.9	3.3	8.7	1.7	5.0	13
27	13	35	15	13	17	11	2.6	3.4	5.0	2.4	5.6	11
28	70	25	21	13	17	9.1	10	2.4	5.6	1.8	6.0	10
29	18	22	15	15	---	9.9	4.1	2.7	4.0	1.7	14	9.7
30	15	106	14	16	---	10	3.1	2.4	43	2.3	4.6	9.2
31	13	---	14	21	---	11	---	2.7	---	2.9	3.7	---
TOTAL	740	1791	530	517	761	542.6	161.8	169.4	148.5	143.0	146.1	2177.0
MEAN	23.9	59.7	17.1	16.7	27.2	17.5	5.39	5.46	4.95	4.61	4.71	72.6
MAX	70	324	28	36	254	78	10	45	43	66	16	1240
MIN	13	11	14	13	11	9.1	2.6	2.4	1.7	1.4	1.5	4.6
AC-FT	1470	3550	1050	1030	1510	1080	321	336	295	284	290	4320
CFSM	1.46	3.64	1.04	1.02	1.66	1.07	.33	.33	.30	.28	.29	4.42
IN.	1.68	4.06	1.20	1.17	1.73	1.23	.37	.38	.34	.32	.33	4.94

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1994, BY WATER YEAR (WY)

	MEAN	76.7	92.3	56.8	23.3	18.2	19.4	15.2	52.0	48.7	47.1	60.0	77.5
MAX	293	461	550	77.0	47.9	39.7	41.7	268	188	163	231	255	
(WY)	1986	1988	1988	1992	1984	1973	1985	1985	1979	1981	1979	1979	
MIN	19.9	19.5	11.0	11.4	7.21	7.01	5.39	5.02	4.95	4.61	4.71	10.8	
(WY)	1993	1990	1990	1976	1974	1977	1994	1990	1994	1994	1994	1987	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1971 - 1994
ANNUAL TOTAL	13893.1	7827.4	
ANNUAL MEAN	38.1	21.4	49.1
HIGHEST ANNUAL MEAN			121
LOWEST ANNUAL MEAN			17.1
HIGHEST DAILY MEAN	1430	Jul 11	9100
LOWEST DAILY MEAN	7.1	Apr 11	1.4
ANNUAL SEVEN-DAY MINIMUM	8.0	Apr 5	1.7
INSTANTANEOUS PEAK FLOW		7150	Sep 20
INSTANTANEOUS PEAK STAGE		13.08	Sep 20
INSTANTANEOUS LOW FLOW			25.63
ANNUAL RUNOFF (AC-FT)	27560	15530	1.4
ANNUAL RUNOFF (CFSM)	2.32	1.31	3.00
ANNUAL RUNOFF (INCHES)	31.51	17.75	40.70
10 PERCENT EXCEEDS	58	29	71
50 PERCENT EXCEEDS	19	12	18
90 PERCENT EXCEEDS	12	2.4	6.9

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1983 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1994.

INSTRUMENTATION.-- Automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,600 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 46,300 tons (42,000 tonnes) May 18, 1985; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR WATER YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1050 mg/L Sep. 20, 1994; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 9,710 tons (8,800 tonnes) Nov. 20, 1994; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	42	85	10	12	22	.73	28	69	5.8
2	29	62	4.7	12	19	.59	23	66	4.1
3	22	39	2.3	12	20	.66	20	62	3.3
4	21	35	1.9	12	20	.66	20	63	3.4
5	21	35	2.0	11	29	.86	20	61	3.3
6	70	122	38	11	43	1.3	20	100	5.3
7	28	45	3.3	11	30	.89	18	104	4.9
8	23	37	2.2	14	24	1.1	17	74	3.3
9	19	35	1.8	16	26	1.3	18	43	2.1
10	18	28	1.3	20	33	1.9	17	31	1.5
11	17	16	.70	13	23	.82	16	20	.90
12	25	43	3.6	11	30	.89	16	19	.82
13	24	41	3.2	12	39	1.3	16	21	.88
14	16	27	1.2	14	32	1.2	16	21	.89
15	15	26	1.0	17	28	1.3	15	21	.83
16	30	58	9.2	324	559	1760	15	22	.85
17	21	35	2.2	42	67	8.1	14	23	.85
18	15	26	1.1	292	580	1210	19	23	1.2
19	17	28	1.2	182	345	233	15	24	1.0
20	15	28	1.1	259	505	961	15	26	1.0
21	15	27	1.0	88	157	52	16	24	1.0
22	16	22	.92	36	62	6.2	18	20	.99
23	34	55	8.3	28	43	3.3	15	17	.66
24	17	29	1.4	31	61	5.1	15	13	.48
25	13	23	.80	30	68	5.8	15	10	.39
26	28	45	4.5	93	176	87	14	12	.44
27	13	23	.81	35	59	5.6	15	23	.96
28	70	122	62	25	41	2.8	21	33	1.9
29	18	31	1.6	22	37	2.3	15	27	1.1
30	15	24	.95	106	185	104	14	25	.96
31	13	21	.71	---	---	---	14	22	.85
TOTAL	740	---	174.99	1791	---	4461.70	530	---	55.95

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	18	26	1.3	14	23	.86	18	30	1.4
2	16	27	1.2	14	23	.86	18	30	1.4
3	16	25	1	14	23	.86	16	34	1.4
4	14	24	.92	15	42	1.6	14	39	1.5
5	18	33	1.8	14	60	2.3	13	39	1.4
6	15	37	1.5	13	40	1.4	13	29	.97
7	14	45	1.7	12	20	.64	12	20	.64
8	14	48	1.8	12	20	.64	13	23	.83
9	16	42	1.8	12	19	.59	18	31	1.6
10	24	41	2.9	11	18	.54	69	126	52
11	16	27	1.2	12	18	.55	18	30	1.5
12	16	26	1.2	12	18	.55	78	146	91
13	20	33	2.0	11	20	.59	20	34	2
14	36	58	6.5	13	22	.79	15	25	.98
15	18	35	1.6	14	31	1.1	13	21	.74
16	16	38	1.7	11	34	1	13	20	.70
17	16	26	1.2	11	25	.71	12	19	.66
18	17	28	1.3	13	22	.78	12	19	.58
19	15	24	.94	66	111	35	12	20	.6
20	15	25	1	254	556	1020	12	20	.64
21	16	28	1.3	34	57	5.4	11	19	.58
22	15	25	1	21	35	2	11	20	.66
23	13	22	.78	37	59	7.4	11	22	.71
24	14	24	.91	35	58	6.2	11	21	.70
25	13	22	.8	32	54	4.9	9.6	21	.64
26	18	29	1.5	20	34	1.9	29	55	5.9
27	13	21	.71	17	28	1.3	11	24	.93
28	13	22	.8	17	28	1.3	9.1	22	.59
29	15	39	1.5	---	---	---	9.9	21	.62
30	16	27	1.2	---	---	---	10	25	.90
31	21	35	2.2	---	---	---	11	19	.62
TOTAL	517	---	47.26	761	---	1101.76	542.6	---	175.39

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	8.5	14	.33	2.9	4	.04	2.6	14	.10
2	8.1	14	.30	2.6	4	.03	2.2	9	.06
3	8.0	14	.30	2.8	4	.03	1.7	6	.02
4	7.7	13	.26	3.8	5	.05	1.7	4	.02
5	7.2	12	.23	3.4	9	.08	1.8	3	.02
6	7.0	11	.22	3.6	10	.09	8.0	312	3.9
7	9.1	15	.38	2.9	7	.06	3.3	5	.04
8	9.1	15	.80	3.0	6	.05	2.2	3	.02
9	4.2	7	.09	6.2	10	.20	2.6	6	.05
10	5.8	9	.14	45	80	22	2.7	18	.13
11	6.4	8	.15	9.3	15	.45	3.4	30	.27
12	6.2	8	.14	5.4	8	.12	2.9	14	.12
13	5.0	7	.10	12	20	.85	2.4	3	.02
14	4.6	6	.08	8.6	28	.66	1.9	3	.02
15	4.6	6	.08	5.9	40	.62	5.8	10	.40
16	4.4	6	.08	4.7	35	.45	6.5	11	.30
17	4.2	6	.07	4.2	27	.32	7.6	13	.33
18	4.2	6	.06	3.8	21	.22	5.6	9	.15
19	3.9	6	.07	3.5	14	.13	3.3	5	.05
20	3.4	4	.05	3.1	10	.08	2.6	4	.03
21	3.2	4	.04	3.2	11	.09	2.7	3	.03
22	4.8	7	.10	3.1	9	.07	2.4	3	.02
23	3.3	7	.07	3.5	5	.05	2.0	3	.02
24	3.2	1200	11	3.0	5	.04	1.9	4	.02
25	3.0	5	.04	3.0	5	.04	2.4	6	.04
26	2.9	4	.03	3.3	5	.04	8.7	15	.66
27	2.6	4	.03	3.4	15	.13	5.0	9	.15
28	10	18	.89	2.4	30	.20	5.6	9	.17
29	4.1	6	.08	2.7	30	.21	4.0	6	.06
30	3.1	5	.04	2.4	25	.16	43	128	52
31	---	---	---	2.7	19	.15	---	---	---
TOTAL	161.8	---	16.25	169.4	---	27.71	148.5	---	59.22

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	8.4	15	.57	3.5	5	.05	4.6	7	.09
2	3.0	6	.04	2.1	3	.01	32	59	9.2
3	3.2	5	.05	1.8	4	.02	18	81	5.0
4	2.5	4	.02	1.5	5	.02	22	38	3.9
5	2.2	4	.02	2.6	3	.03	8.8	15	.38
6	2.4	4	.02	3.6	6	.06	142	267	158
7	3.9	6	.08	2.2	4	.02	45	78	14
8	3.2	5	.05	1.8	3	.02	14	24	.92
9	2.5	3	.03	1.5	3	.01	26	44	4.6
10	2.2	3	.01	6.9	11	.31	17	34	2.6
11	2.1	3	.01	6.6	11	.19	28	47	5.3
12	1.6	2	.01	4.0	6	.07	9.9	16	.44
13	1.5	2	<.01	3.1	5	.04	8.9	15	.37
14	1.5	2	<.01	2.7	5	.04	8.9	15	.36
15	1.4	2	<.01	2.3	5	.02	187	365	669
16	1.4	3	.01	2.0	5	.03	88	160	53
17	2.6	3	.03	1.5	4	.02	29	58	5.0
18	66	139	68	12	20	1.3	18	32	1.6
19	6.9	19	.38	8.8	22	.55	24	41	5.7
20	2.9	14	.12	5.0	22	.30	1240	1050	9710
21	2.4	3	.02	3.8	16	.17	75	131	33
22	1.9	9	.05	3.6	5	.05	27	40	2.9
23	1.6	12	.05	3.3	5	.05	17	32	1.5
24	1.4	7	.03	5.0	9	.18	20	36	2.2
25	1.5	3	.01	16	27	1.5	14	23	.83
26	1.7	3	.01	5.0	7	.11	13	22	.77
27	2.4	4	.03	5.6	8	.15	11	18	.54
28	1.8	3	.02	6.0	10	.17	10	16	.44
29	1.7	3	<.01	14	23	1.3	9.7	16	.43
30	2.3	3	.02	4.6	6	.09	9.2	16	.40
31	2.9	4	.03	3.7	5	.05	---	---	---
TOTAL	143.0	---	69.72	146.1	---	6.93	2177.0	---	10692.47
YEAR	7827.4		16889.35						

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1993							
28...	1330	367	1160	1140	69	75	78
FEB 1994							
20...	0555	455	3360	4130	44	58	69
JUN							
30...	1710	218	1610	498	71	78	84
SEP							
16...	1415	182	1170	156	78	83	87
20...	1130	4870	2590	34000	38	45	51
20...	1145	4090	2040	22500	44	52	58

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1993							
28...	84	92	98	99	99.5	99.8	99.9
FEB 1994							
20...	81	85	96	98	99.5	99.7	99.9
JUN							
30...	86	86	97	98	98.9	99.3	99.7
SEP							
16...	88	92	99	99.5	99.6	99.8	99.9
20...	62	77	91	96	98	98	99
20...	69	77	91	96	97	98	99

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1993					
16...	1336	125	450	152	98
FEB 1994					
19...	0615	386	289	289	97
20...	0615	386	1950	2030	95
JUN					
30...	1048	6.5	72	1.3	99
30...	1750	245	1090	722	98
JUL					
18...	1142	210	3540	2000	100
18...	1312	258	287	200	98
28...	0932	2.0	106	0.6	61
SEP					
03...	1145	15	112	4.5	98
20...	1230	2470	808	5390	94

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR

LOCATION.--Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--60.2 mi² (155.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to Oct. 1, 1989 datum 5.0 ft (1.5 m) higher.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Low flow affected by diversions for water supply about, 400 ft (121m) upstream from station by A.A.A.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate elevation to gage datum of the Aug. 4, 1945 flood, as pointed out by local residents, 26.6 ft (8.1 m), datum then is use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	24	65	16	15	78	11	9.8	19	94	28	9.7
2	75	21	42	24	13	91	9.1	10	19	26	22	25
3	64	20	35	22	14	44	7.9	12	23	18	17	62
4	49	19	32	17	14	25	7.3	13	72	13	12	47
5	42	17	35	16	15	19	6.4	11	14	11	12	39
6	73	16	33	19	12	18	6.8	16	92	13	12	93
7	114	16	27	16	9.7	47	11	18	43	14	9.9	124
8	76	16	23	13	8.8	20	12	15	13	25	7.1	50
9	54	30	22	13	8.5	46	12	77	9.6	16	14	36
10	42	33	26	20	7.9	69	6.9	188	9.8	15	12	38
11	36	32	19	20	7.3	45	21	127	8.8	13	43	55
12	44	21	18	36	7.4	63	40	50	27	14	26	28
13	48	18	18	27	7.3	44	19	47	14	11	16	18
14	35	41	18	47	7.1	21	11	51	8.6	10	24	15
15	26	156	23	25	11	15	13	44	8.5	9.0	16	87
16	37	1050	18	20	9.0	13	23	27	44	9.1	13	83
17	74	181	16	17	7.1	11	12	139	57	11	13	60
18	58	532	28	22	6.6	10	10	44	81	63	17	28
19	36	399	21	17	25	9.3	11	25	29	74	104	25
20	43	207	22	14	418	9.4	10	20	16	27	67	1870
21	37	179	25	18	75	9.2	10	15	12	15	37	194
22	54	78	21	18	88	8.9	10	13	10	11	27	78
23	81	60	17	16	50	8.4	13	12	9.2	11	24	49
24	70	61	16	13	82	8.9	11	11	7.9	14	52	44
25	41	55	15	13	46	8.1	11	11	7.3	14	65	32
26	85	148	14	16	40	32	12	13	12	15	26	25
27	38	93	14	13	55	19	15	11	30	15	13	22
28	99	60	30	11	26	10	30	13	17	17	15	18
29	79	49	25	32	---	9.4	33	15	20	11	49	16
30	34	98	18	26	---	12	14	17	58	16	21	14
31	27	---	15	21	---	13	---	15	---	18	12	---
TOTAL	1810	3730	751	618	1085.7	836.6	419.4	1089.8	791.7	643.1	826.0	3284.7
MEAN	58.4	124	24.2	19.9	38.8	27.0	14.0	35.2	26.4	20.7	26.6	109
MAX	139	1050	65	47	418	91	40	188	92	94	104	1870
MIN	26	16	14	11	6.6	8.1	6.4	9.8	7.3	9.0	7.1	9.7
AC-FT	3590	7400	1490	1230	2150	1660	832	2160	1570	1280	1640	6520
CFSM	.97	2.07	.40	.33	.64	.45	.23	.58	.44	.34	.44	1.82
IN.	1.12	2.30	.46	.38	.67	.52	.26	.67	.49	.40	.51	2.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1994, BY WATER YEAR (WY)

	MEAN	200	206	159	62.1	46.0	39.5	42.0	148	133	122	168	220
MAX	1414	1045	863	204	131	97.5	93.9	746	468	376	610	1225	
(WY)	1971	1988	1988	1992	1989	1985	1985	1985	1970	1993	1979	1960	
MIN	16.0	37.3	10.7	16.4	12.6	11.2	14.0	12.7	16.8	20.7	24.8	8.76	
(WY)	1968	1974	1968	1968	1968	1965	1994	1990	1972	1994	1967	1967	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1960 - 1994

ANNUAL TOTAL	35293	15886.0	
ANNUAL MEAN	96.7	43.5	131
HIGHEST ANNUAL MEAN			286
LOWEST ANNUAL MEAN			42.2
HIGHEST DAILY MEAN	6200	Jul 11	21100
LOWEST DAILY MEAN	14	Dec 26	4.8
ANNUAL SEVEN-DAY MINIMUM	17	Dec 21	5.5
INSTANTANEOUS PEAK FLOW			7180
INSTANTANEOUS PEAK STAGE			18.41
INSTANTANEOUS LOW FLOW			27.70
ANNUAL RUNOFF (AC-FT)	70000	31510	94580
ANNUAL RUNOFF (CFSM)	1.61	.72	2.17
ANNUAL RUNOFF (INCHES)	21.81	9.82	29.47
10 PERCENT EXCEEDS	132	77	207
50 PERCENT EXCEEDS	42	20	49
90 PERCENT EXCEEDS	24	9.8	18

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1984 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1994.

INSTRUMENTATION.-- USD-49 and automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 9,220 mg/L Nov 27, 1987; Minimum daily mean, 3 mg/L Aug. 09, 1994.

SEDIMENT LOADS: Maximum daily mean, 686,000 tons (622,340 tonnes) Nov 27, 1987; Minimum daily mean, 0.08 ton (0.07 tonne) Aug. 08, 1994.

EXTREMES FOR CURRENT YEARS 1993-94.--

Water Year	Suspended-sediment concentration (mg/L)		Suspended-sediment discharge (tons per day)	
	maximum	minimum	maximum	minimum
1993	1250 (Apr. 29)	4 (Aug. 1-4)	18600 (Jul. 11)	.64 (May, 20)
1994	658 (Sep. 20)	3 (Aug. 09)	6800 (Sep. 20)	.08 (Aug. 08)

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER									
1	52	42	6.8	81	63	15	226	162	104
2	45	36	4.7	61	47	7.8	151	79	34
3	26	23	1.7	86	60	16	124	67	22
4	21	21	1.2	202	144	85	154	112	49
5	20	20	1.1	136	102	43	128	99	36
6	31	27	3.1	121	93	35	144	103	44
7	81	64	17	180	132	73	112	74	23
8	44	39	5.4	88	69	17	87	32	7.7
9	46	43	6.0	76	60	13	78	16	3.4
10	36	93	9.3	177	125	64	71	11	2.1
11	37	84	8.1	93	65	17	67	10	1.8
12	31	72	6.4	70	46	8.9	63	10	1.6
13	27	61	4.4	92	64	17	60	10	1.6
14	29	50	3.7	73	42	8.7	62	11	1.8
15	29	50	3.9	130	88	50	64	13	2.2
16	30	32	2.6	167	126	65	60	15	2.3
17	40	30	3.2	205	152	93	59	15	2.3
18	61	44	9.7	515	392	1140	57	13	2.0
19	59	48	8.0	271	194	169	55	11	1.6
20	71	52	10	147	107	44	51	10	1.4
21	62	42	7.0	120	45	16	50	10	1.3
22	60	40	6.6	173	127	64	52	10	1.4
23	50	41	5.6	146	107	45	54	10	1.4
24	51	45	6.5	93	72	18	53	31	4.7
25	73	54	11	85	43	10	72	61	12
26	55	68	10	76	49	9.9	481	391	1070
27	50	82	11	240	202	342	169	123	71
28	47	94	12	985	532	1860	85	68	16
29	66	91	16	213	155	99	269	203	311
30	55	63	9.8	2230	630	5350	763	485	1500
31	70	61	13	---	---	---	379	259	360
TOTAL	1455	---	224.8	7332	---	9795.3	4300	---	3692.6

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	184	133	64	46	37	4.6	e32	28	e2.4
2	125	53	18	53	43	8.4	e30	28	e2.3
3	113	31	9.4	114	87	32	e30	99	e8.1
4	106	28	8.1	58	45	7.2	e30	165	e13
5	85	25	5.9	48	40	5.1	e30	155	e13
6	96	27	7.0	42	36	4.2	e28	141	e11
7	134	93	42	39	32	3.3	e28	121	e9.1
8	144	111	50	41	26	2.8	e30	99	e7.7
9	91	47	12	43	20	2.3	e30	27	e2.2
10	85	37	8.6	40	17	1.8	e30	46	e3.7
11	71	30	5.9	40	17	1.8	e29	39	e3.1
12	66	24	4.4	47	19	2.6	e30	32	e2.5
13	60	18	2.9	54	23	3.2	e29	25	e2.0
14	62	15	2.5	43	28	3.2	e29	23	e1.8
15	60	15	2.5	36	32	3.1	e29	25	e2.0
16	54	16	2.4	35	32	3.0	e30	26	e2.1
17	56	17	2.6	e35	30	e2.8	e56	36	e5.4
18	50	17	2.3	e35	30	e2.8	e60	57	e9.1
19	46	17	2.2	e36	261	e25	e40	80	e8.6
20	45	17	2.0	e33	254	e23	e38	91	e9.3
21	40	17	1.8	e33	244	e22	e40	86	e9.3
22	43	17	2.1	e34	231	e21	e30	77	e6.2
23	68	25	5.2	e32	217	e19	e28	49	e3.7
24	44	11	1.3	e32	201	e17	e56	58	e8.7
25	44	15	2.2	e32	175	e15	e54	62	e9.0
26	51	41	6.1	e33	128	e11	e36	67	e6.5
27	39	34	3.6	e32	1220	e109	e33	70	e6.2
28	69	54	10	e32	38	e3.3	e30	71	e5.8
29	360	276	441	---	---	---	e28	75	e5.7
30	84	55	14	---	---	---	e26	79	e5.5
31	58	40	6.3	---	---	---	e26	82	e5.8
TOTAL	2633	---	748.3	1178	---	359.5	1055	---	190.8

e Estimated

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	e26	86	e6.0	e450	310	e377	24	25	1.6
2	e25	89	e6.0	e400	277	e299	e25	25	e1.7
3	e24	88	e5.7	e26	24	e1.7	e25	27	e1.8
4	e25	83	e5.6	e34	30	e2.8	e23	29	e1.9
5	e25	77	e5.2	e23	73	e4.5	e20	33	e1.9
6	e43	69	e8.0	e21	66	e3.7	e20	38	e2.1
7	e33	63	e5.6	e21	55	e3.1	e19	44	e2.3
8	e33	61	e5.4	e240	170	e110	e20	49	e2.6
9	e39	61	e6.4	e60	46	e7.5	74	59	15
10	e34	55	e5.1	e40	33	e3.6	121	91	33
11	e26	36	e2.5	e27	25	e1.8	59	52	10
12	e27	19	e1.4	e50	40	e5.4	32	29	2.6
13	100	73	49	e76	61	e13	36	32	5.6
14	91	72	22	e40	33	e3.6	216	155	104
15	115	104	59	e27	28	e2.0	99	103	31
16	62	180	31	e29	22	e1.7	64	90	17
17	48	147	19	e25	18	e1.2	37	90	9.4
18	29	104	8.8	e25	13	e.88	29	90	7.1
19	78	106	22	e27	10	e.73	2030	763	7010
20	60	75	12	e25	10	e.64	991	507	1980
21	56	80	12	e25	11	e.75	157	108	50
22	35	56	5.6	e25	14	e.92	105	75	21
23	39	33	3.2	e30	27	e2.2	80	57	13
24	115	84	48	36	31	3.1	69	37	6.9
25	77	59	14	43	35	4.1	58	24	3.9
26	39	33	3.5	70	55	11	51	25	3.5
27	e25	23	e1.6	86	68	25	47	35	4.3
28	e70	56	e11	127	120	47	43	60	6.6
29	e130	1250	e438	48	78	10	31	80	7.3
30	e250	177	e119	31	50	4.3	57	51	7.4
31	---	---	---	25	24	1.6	---	---	---
TOTAL	1779	---	941.6	2212	---	953.82	4662	---	9364.5

e Estimated

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	46	28	3.7	57	4	.62	45	9	1.0
2	64	38	6.5	54	4	.59	37	8	.90
3	196	131	78	50	4	.54	37	9	.84
4	93	90	25	46	4	.55	27	17	1.3
5	48	54	7.6	45	5	.71	74	58	16
6	37	37	3.8	45	6	.77	88	71	22
7	46	49	7.6	40	7	.83	38	34	3.7
8	126	96	36	38	10	.96	118	86	71
9	74	67	15	36	10	.98	125	96	44
10	41	59	6.5	36	10	1.0	156	120	85
11	6200	596	18600	34	10	1.0	136	105	62
12	428	303	484	34	10	.92	48	47	6.6
13	144	113	49	30	10	.84	35	42	4.2
14	117	61	20	29	10	.76	36	36	3.2
15	104	62	51	31	9	.83	30	29	2.4
16	334	261	376	57	10	1.4	92	70	21
17	106	65	22	48	10	1.3	112	84	37
18	80	21	4.8	33	11	.99	138	111	55
19	69	10	2.0	29	16	1.2	114	89	38
20	67	8	1.5	28	20	1.5	117	88	47
21	57	6	.94	27	20	1.5	63	65	13
22	681	294	1290	58	47	13	42	57	6.6
23	1390	562	2720	94	72	19	41	50	6.0
24	335	151	164	80	64	15	46	43	5.3
25	149	87	37	80	54	12	38	40	4.5
26	159	119	71	52	35	5.1	57	46	7.5
27	165	112	66	45	43	6.9	40	33	3.4
28	94	28	7.6	37	44	4.4	51	44	8.4
29	76	14	2.9	31	34	3.0	103	113	35
30	67	10	1.9	28	23	1.8	378	405	1260
31	62	6	1.0	34	13	1.2	---	---	---
TOTAL	11655	---	24162.34	1366	---	101.19	2462	---	1871.84
YEAR	42089		52406.59						

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	139	187	75	24	43	2.7	65	35	8.0
2	75	121	25	21	50	2.8	42	18	2.1
3	64	66	12	20	56	3.0	35	26	2.4
4	49	39	5.3	19	63	3.3	32	48	4.1
5	42	29	3.3	17	72	3.3	35	44	4.1
6	73	26	5.6	16	78	3.5	33	23	2.1
7	114	72	33	16	79	3.5	27	15	1.1
8	76	80	17	16	81	3.5	23	41	2.5
9	54	66	9.7	30	81	6.8	22	36	2.1
10	42	40	4.6	33	82	7.3	26	19	1.2
11	36	35	3.4	32	74	6.5	19	11	.68
12	44	39	4.9	21	46	2.8	18	10	.50
13	48	42	5.9	18	17	.82	18	10	.47
14	35	35	3.4	41	36	5.4	18	10	.51
15	26	48	3.4	156	116	57	23	10	.63
16	37	71	7.6	1050	627	3980	18	10	.50
17	74	74	14	181	118	65	16	10	.44
18	58	75	12	532	476	1800	28	48	3.9
19	36	75	7.4	399	277	356	21	50	2.9
20	43	74	8.6	207	163	133	22	48	2.7
21	37	58	6.3	179	133	82	25	47	3.2
22	54	36	5.3	78	65	14	21	44	2.5
23	81	42	12	60	52	8.6	17	46	2.2
24	70	59	12	61	52	8.7	16	50	2.1
25	41	38	4.6	55	48	7.5	15	51	2.1
26	85	77	19	148	111	59	14	44	1.7
27	38	60	6.5	93	82	22	14	33	1.2
28	99	81	33	60	52	8.8	30	30	2.6
29	79	66	17	49	42	5.4	25	17	1.3
30	34	32	3.1	98	60	20	18	15	.68
31	27	31	2.2	---	---	---	15	29	1.1
TOTAL	1810	---	382.1	3730	---	6682.22	751	---	63.61

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	16	42	1.7	15	38	1.6	78	59	38
2	24	32	2.1	13	29	1.0	91	85	23
3	22	21	1.3	14	19	.73	44	60	7.0
4	17	14	.62	14	10	.36	25	53	3.7
5	16	7	.29	15	15	.61	19	45	2.3
6	19	9	.42	12	21	.70	18	40	2.0
7	16	19	.86	9.7	28	.72	47	41	5.5
8	13	47	1.6	8.8	35	.85	20	32	1.8
9	13	59	2.1	8.5	48	1.1	46	35	4.7
10	20	60	3.2	7.9	52	1.1	69	64	16
11	20	61	3.4	7.3	52	.99	45	83	10
12	36	63	6.0	7.4	55	1.1	63	81	15
13	27	45	3.3	7.3	57	1.2	44	41	5.5
14	47	64	8.9	7.1	58	1.1	21	22	1.3
15	25	73	5.0	11	59	1.8	15	16	.69
16	20	61	3.4	9.0	48	1.2	13	14	.45
17	17	40	1.8	7.1	20	.38	11	13	.37
18	22	16	.88	6.6	9	.15	10	13	.38
19	17	7	.33	25	20	3.2	9.3	14	.36
20	14	15	.54	418	413	885	9.4	28	.70
21	18	39	2.1	75	65	15	9.2	56	1.4
22	18	61	3.0	88	75	19	8.9	66	1.6
23	16	65	2.8	50	58	8.0	8.4	59	1.4
24	13	61	2.1	82	65	15	8.9	52	1.3
25	13	57	2.0	46	60	7.8	8.1	45	.94
26	16	53	2.2	40	42	4.8	32	42	3.8
27	13	52	1.9	55	47	7.2	19	32	1.7
28	11	54	1.5	26	25	1.9	10	26	.71
29	32	57	5.1	---	---	---	9.4	20	.48
30	26	52	3.5	---	---	---	12	14	.43
31	21	46	2.7	---	---	---	13	12	.43
TOTAL	618	---	76.64	1085.7	---	983.59	836.6	---	152.94

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	11	10	.26	9.8	32	.84	19	11	.57
2	9.1	8	.21	10	27	.74	19	9	.46
3	7.9	8	.18	12	23	.74	23	12	1.7
4	7.3	7	.14	13	19	.65	72	57	17
5	6.4	7	.12	11	16	.48	14	14	.60
6	6.8	7	.11	16	9	.36	92	67	26
7	11	7	.20	18	10	.46	43	38	5.4
8	12	7	.25	15	40	1.5	13	11	.46
9	12	33	.97	77	64	15	9.6	8	.21
10	6.9	25	.44	188	140	84	9.8	8	.21
11	21	21	2.0	127	133	51	8.8	8	.20
12	40	37	4.6	50	72	9.9	27	18	1.5
13	19	14	.83	47	51	6.5	14	9	.35
14	11	8	.23	51	46	5.9	8.6	8	.17
15	13	6	.21	44	33	3.9	8.5	6	.16
16	23	4	.28	27	22	1.7	44	38	5.3
17	12	4	.14	139	110	50	57	46	13
18	10	5	.14	44	70	8.6	81	58	14
19	11	6	.17	25	60	4.1	29	39	3.1
20	10	7	.17	20	54	2.9	16	35	1.4
21	10	7	.20	15	50	1.9	12	24	.79
22	10	7	.18	13	47	1.7	10	17	.47
23	13	6	.19	12	43	1.4	9.2	12	.29
24	11	8	.26	11	40	1.1	7.9	9	.19
25	11	10	.32	11	39	1.2	7.3	7	.15
26	12	33	1.1	13	32	1.1	12	6	.19
27	15	11	.41	11	18	.54	30	28	2.4
28	30	23	3.8	13	9	.31	17	17	.83
29	33	59	5.5	15	9	.36	20	12	.64
30	14	42	1.7	17	9	.40	58	44	13
31	---	---	---	15	10	.42	---	---	---
TOTAL	419.4	---	25.31	1089.8	---	259.70	791.7	---	110.74

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	94	77	23	28	19	1.5	9.7	7	.18
2	26	37	2.8	22	16	.97	25	22	2.4
3	18	32	1.6	17	17	.77	62	45	8.3
4	13	24	.85	12	15	.46	47	38	5.3
5	11	20	.60	12	10	.34	39	35	4.2
6	13	12	.41	12	6	.18	93	75	31
7	14	10	.40	9.9	4	.11	124	123	44
8	25	21	1.5	7.1	4	.08	50	61	8.6
9	16	15	.63	14	3	.12	36	27	2.5
10	15	13	.54	12	7	.40	38	15	1.6
11	13	11	.35	43	34	4.0	55	32	5.3
12	14	9	.34	26	12	.87	28	10	.77
13	11	5	.14	16	6	.26	18	8	.39
14	10	3	.09	24	16	1.5	15	6	.26
15	9.0	4	.09	16	8	.34	87	60	33
16	9.1	4	.10	13	7	.26	83	67	15
17	11	9	.28	13	7	.26	60	52	9.0
18	63	48	15	17	4	.20	28	21	1.7
19	74	62	14	104	77	24	25	23	1.8
20	27	23	1.8	67	25	5.2	1870	658	6800
21	15	13	.56	37	6	.61	194	105	65
22	11	10	.30	27	6	.40	78	36	7.9
23	11	7	.24	24	15	1.2	49	19	2.5
24	14	6	.23	52	46	8.0	44	15	1.8
25	14	6	.22	65	55	9.9	32	13	1.2
26	15	6	.25	26	30	2.2	25	12	.81
27	15	6	.26	13	25	.92	22	11	.65
28	17	8	.39	15	18	.73	18	10	.48
29	11	10	.30	49	83	13	16	10	.43
30	16	11	.49	21	57	3.5	14	10	.38
31	18	13	.65	12	15	.54	---	---	---
TOTAL	643.1	---	68.41	826.0	---	82.82	3284.7	---	7056.45
YEAR	15886.0		15944.53						

RIO GRANDE DE LOIZA BASIN

50057000 RIO GURABO AT GURABO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
NOV 1992							
18...	1537	2010	2070	11200	58	65	68
30...	1520	628	10300	17500	20	23	25
JUN 1993							
19...	1015	1290	5630	19600	32	--	42
19...	1050	1920	5120	26500	36	41	48
JUL							
15...	2345	622	9480	15900	13	14	17
SEP							
30...	1610	1180	4020	12800	43	50	55
NOV							
18...	1750	1910	4180	21560	41	47	52
18...	1835	1480	1970	7880	53	59	65
MAR 1994							
20...	0500	1700	2390	10960	55	64	69
SEP							
20...	1120	5410	2530	36900	45	54	61
20...	1200	6520	1580	27800	1.0	12	24
20...	1200	6520	2320	40900	46	52	59
20...	1325	6640	1680	30200	50	59	64
20...	1530	3270	1240	10920	57	62	66
20...	1530	6270	1480	25000	75	82	80

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1992							
18...	77	81	95	98	99.3	99.8	99.9
30...	33	45	66	88	94.7	97	99
JUN 1993							
19...	50	61	75	87	95.4	99	99.7
19...	56	66	82	92	97.7	99.4	99.9
JUL							
15...	24	36	54	79	93	95	99.3
SEP							
30...	66	75	92	97	99	99.7	100
NOV							
18...	65	72	83	90	96	98	99
18...	74	79	91	95	98	99	100
MAR 1994							
20...	78	86	94	98	99	99.8	100
SEP							
20...	70	80	91	96	99	99.7	99.8
20...	48	66	83	92	97	98	99
20...	70	77	90	96	99	99.7	99.9
20...	74	80	91	96	99	99.5	99.7
20...	75	79	92	97	99	99.7	99.9
20...	86	91	98	99.6	99.9	100	100

RIO GRANDE DE LOIZA BASIN
50057000 RIO GURABO AT GURABO, PR--Continued
WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1994
SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1992					
17...	1558	206	194	108	99
18...	1807	1200	851	2760	98
27...	0020	697	700	1320	99
27...	2120	1070	826	2390	95
28...	1658	856	583	1350	93
DEC					
26...	1455	605	754	1230	99
26...	1614	738	796	1590	84
28...	1145	84	85	19	96
JAN 1993					
29...	0420	922	916	2280	98
FEB					
03...	1101	97	232	61	97
APR					
14...	1300	73	287	57	99
JUN					
17...	1350	35	91	8.6	95
19...	1320	6620	1400	25000	93
19...	1535	4920	895	11900	88
29...	1025	26	196	14	100
SEP					
30...	1745	80	294	64	99
OCT					
30...	1647	33	1860	166	5
NOV					
18...	1835	1480	1320	5270	94
FEB 1994					
20...	0530	1650	1290	5750	99
20...	0730	870	596	1400	96
MAY					
11...	1810	32	78	6.7	96
JUN					
18...	1145	73	46	9.1	89
SEP					
20...	1230	7180	1910	37000	92
20...	1230	7180	2050	39740	90
20...	1305	6940	1670	31300	90
20...	1630	2080	844	4740	95
20...	1630	2080	409	2300	91
21...	1648	135	78	28	94

RIO GRANDE DE LOIZA BASIN

50057025 RIO GURABO NEAR GURABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'56", long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo plaza.

DRAINAGE AREA.--62.8 mi² (162.7 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
26...	1100	0.0	321	7.3	28.5	5.2	3.7	47	19	30000	5300
DEC 14...	1115	0.0	320	7.4	29.5	2.5	5.4	70	11	9000	4900
FEB 1994											
16...	1100	0.0	432	7.2	27.0	1.6	3.8	47	<10	460	140
APR 28...	0815	9.1	451	7.1	28.0	1.2	1.5	19	13	K77000	4100
JUN 17...	0740	256	242	7.2	27.5	4.3	34.0	42	22	560	450
AUG 08...	0750	7.3	460	7.1	29.0	3.7	2.0	25	33	270	510

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
26...	110	24	11	25	1	4.3	110	0.6	14	24	0.20
DEC 14...	--	--	--	--	--	--	130	--	--	--	--
FEB 1994											
16...	--	--	--	--	--	--	140	--	--	--	--
APR 28...	140	30	17	36	1	5.1	140	<0.5	23	42	0.20
JUN 17...	--	--	--	--	--	--	110	--	--	--	--
AUG 08...	140	31	16	42	2	5.8	150	--	24	48	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
26...	30	198	--	22	0.70	0.370	1	100	40	<1	<1
DEC 14...	--	--	--	7	--	--	--	--	--	--	--
FEB 1994											
16...	--	--	--	6	1.0	0.460	--	--	--	--	--
APR 28...	34	271	6.66	18	--	--	2	100	60	<1	<1
JUN 17...	--	--	--	28	0.80	0.480	--	--	--	--	--
AUG 08...	37	294	5.77	21	0.80	0.580	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50057025 RIO GURABO NEAR GURABO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off road 798, upstream side of bridge on Highway 52, 0.5 mi (0.8 km) northeast from Escuela Segunda Unidad de Francisco Valdés, and 0.8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi² (19.50 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.1	4.9	6.2	4.3	4.2	4.7	1.9	2.7	1.4	2.1	3.8	2.6
2	8.4	5.0	5.9	5.0	4.2	5.3	1.9	2.7	1.2	3.4	3.5	2.7
3	10	4.9	5.8	4.4	4.2	3.3	1.9	2.7	1.7	1.8	3.2	2.1
4	45	4.6	8.4	4.4	4.8	2.9	3.5	2.6	1.4	1.7	2.9	1.7
5	9.9	4.4	6.8	4.5	4.7	2.9	4.4	2.7	1.4	1.7	3.2	1.6
6	10	4.4	5.8	4.4	4.3	2.9	3.1	2.7	5.5	5.4	2.9	7.2
7	46	4.4	5.5	4.2	4.2	2.7	2.3	3.1	1.3	4.4	16	2.7
8	11	5.0	5.4	4.2	4.2	2.5	2.3	4.0	1.1	3.1	5.5	2.0
9	7.6	6.4	5.2	4.1	3.9	2.5	2.3	4.0	1.2	2.8	8.9	1.9
10	6.5	8.0	5.3	3.9	3.9	4.1	e8.8	3.7	1.1	2.4	6.1	1.8
11	5.8	5.3	5.2	6.5	3.7	2.4	e11	3.6	1.4	2.4	4.9	2.3
12	5.5	4.9	5.1	4.7	3.7	2.2	e24	3.1	1.1	2.3	3.7	1.9
13	5.1	5.1	5.1	4.6	3.4	2.2	e4.8	3.0	1.2	2.1	3.4	12
14	4.8	18	6.2	4.4	3.5	2.2	e4.6	2.8	1.2	1.9	3.1	1.8
15	4.4	20	4.8	4.2	3.7	2.2	3.4	2.5	e1.1	1.9	3.0	2.2
16	26	18	4.4	4.5	3.6	2.2	3.1	2.4	e1.6	1.9	2.8	1.9
17	8.7	18	4.2	4.7	3.3	2.1	5.2	2.4	e2.6	1.9	2.5	5.6
18	5.5	61	13	4.4	3.3	2.1	3.4	3.0	e2.3	25	12	2.0
19	5.2	13	5.1	4.1	3.4	2.0	12	2.7	e1.8	5.5	34	2.2
20	5.3	11	4.7	5.2	3.5	1.9	4.3	2.2	e1.6	4.2	11	48
21	5.6	10	4.5	4.5	3.6	1.9	3.4	1.8	e1.6	3.1	7.4	8.3
22	6.7	6.8	4.4	3.9	3.5	1.8	2.9	1.7	e1.6	3.0	6.5	3.0
23	5.7	6.1	4.4	7.3	3.5	1.8	2.9	1.7	1.6	2.9	8.1	3.6
24	5.3	7.2	4.2	4.5	3.5	1.8	2.8	1.6	1.6	2.8	35	7.4
25	5.2	8.9	4.2	4.1	3.5	1.8	2.9	2.0	1.5	2.5	23	2.4
26	5.2	9.5	4.2	3.7	3.6	1.8	2.7	2.3	2.9	2.9	8.2	1.8
27	4.9	6.9	7.9	3.7	16	1.8	3.0	2.1	2.0	3.5	9.6	1.7
28	4.9	7.0	6.3	4.0	5.2	1.9	4.1	1.4	1.7	4.4	224	1.6
29	4.9	7.2	4.9	4.2	---	2.7	3.1	1.4	1.6	3.9	8.4	1.8
30	4.6	6.6	4.6	4.2	---	2.4	2.8	1.5	4.0	3.6	2.9	4.5
31	4.4	---	4.2	4.2	---	1.9	---	1.5	---	5.1	2.1	---
TOTAL	296.2	302.5	171.9	139.0	120.1	76.9	138.8	77.6	53.3	115.6	471.6	142.3
MEAN	9.55	10.1	5.55	4.48	4.29	2.48	4.63	2.50	1.78	3.73	15.2	4.74
MAX	46	61	13	7.3	16	5.3	24	4.0	5.5	25	224	48
MIN	4.4	4.4	4.2	3.7	3.3	1.8	1.9	1.4	1.1	1.7	2.1	1.6
AC-FT	588	600	341	276	238	153	275	154	106	229	935	282
CFSM	1.27	1.34	.74	.60	.57	.33	.61	.33	.24	.50	2.02	.63
IN.	1.46	1.49	.85	.69	.59	.38	.69	.38	.26	.57	2.33	.70

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1994, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994	1990	1991	1992	1993	1994
MEAN	17.1	15.4	13.3	11.6	8.34	4.67	5.67	10.5	9.03	10.4	9.75	7.50			
MAX	39.4	36.2	29.9	24.5	13.2	5.88	11.1	19.5	20.0	24.9	17.2	12.9			
(WY)	1991	1993	1993	1992	1991	1992	1993	1992	1993	1993	1992	1992			
MIN	4.60	7.18	5.55	4.48	4.29	2.48	3.53	2.50	1.78	3.40	4.36	4.74			
(WY)	1992	1991	1994	1994	1994	1994	1990	1994	1994	1990	1990	1994			

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1990 - 1994

ANNUAL TOTAL	4109.7	2105.8		
ANNUAL MEAN	11.3	5.77		
HIGHEST ANNUAL MEAN			10.9	
LOWEST ANNUAL MEAN			15.9	1993
HIGHEST DAILY MEAN	236	Jul 11	5.77	1994
LOWEST DAILY MEAN	2.8	Sep 10		
ANNUAL SEVEN-DAY MINIMUM	3.2	Aug 28	292	Oct 17 1990
INSTANTANEOUS PEAK FLOW			1.1	Jun 8 1994
INSTANTANEOUS LOW FLOW			1.2	Jun 8 1994
ANNUAL RUNOFF (AC-FT)	8150		2250	Aug 28
ANNUAL RUNOFF (CFSM)	1.50		17.67	Aug 28
ANNUAL RUNOFF (INCHES)	20.30		1.0	Jun 2
10 PERCENT EXCEEDS	20			
50 PERCENT EXCEEDS	6.2			
90 PERCENT EXCEEDS	3.6			

e Estimated

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1994.

INSTRUMENTATION.-- Automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,600 mg/L Aug. 28, 1994; Minimum daily mean, 1 mg/L September 11, 1991

SEDIMENT LOADS: Maximum daily mean, 10,800 tons (9,800 tonnes) Aug. 28, 1994; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

EXTREMES FOR CURRENT YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,600 mg/L Aug. 28, 1994; Minimum daily mean, 3 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 10,800 tons (9,800 tonnes) Aug. 28, 1994; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	8.1	49	1.1	4.9	12	.17	6.2	10	.16
2	8.4	55	1.4	5.0	11	.16	5.9	10	.16
3	10	64	1.9	4.9	10	.14	5.8	10	.16
4	45	796	458	4.6	10	.13	8.4	10	.22
5	9.9	64	2.0	4.4	10	.12	6.8	10	.18
6	10	70	3.1	4.4	10	.12	5.8	11	.17
7	46	920	484	4.4	10	.12	5.5	12	.17
8	11	68	2.9	5.0	16	.30	5.4	12	.18
9	7.6	19	.38	6.4	10	.16	5.2	12	.16
10	6.5	17	.29	8.0	44	2.0	5.3	11	.15
11	5.8	16	.25	5.3	19	.26	5.2	10	.14
12	5.5	14	.21	4.9	18	.24	5.1	10	.14
13	5.1	13	.18	5.1	21	.31	5.1	10	.14
14	4.8	13	.17	18	226	48	6.2	24	.76
15	4.4	13	.16	20	182	14	4.8	10	.14
16	26	1440	510	18	146	11	4.4	10	.12
17	8.7	57	1.8	18	209	34	4.2	10	.12
18	5.5	18	.29	61	1500	1010	13	100	8.5
19	5.2	13	.20	13	108	4.0	5.1	22	.32
20	5.3	13	.20	11	110	4.6	4.7	20	.26
21	5.6	13	.20	10	65	1.8	4.5	20	.25
22	6.7	29	1.0	6.8	14	.25	4.4	20	.24
23	5.7	21	.38	6.1	12	.20	4.4	20	.23
24	5.3	12	.17	7.2	14	.28	4.2	20	.22
25	5.2	11	.16	8.9	17	.41	4.2	20	.22
26	5.2	11	.15	9.5	17	.42	4.2	20	.23
27	4.9	10	.14	6.9	11	.21	7.9	46	1.4
28	4.9	11	.15	7.0	8	.16	6.3	32	.68
29	4.9	12	.16	7.2	10	.19	4.9	18	.23
30	4.6	12	.16	6.6	10	.18	4.6	16	.19
31	4.4	12	.16	---	---	---	4.2	12	.14
TOTAL	296.2	---	1471.36	302.5	---	1133.93	171.9	---	16.38

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	4.3	11	.14	4.2	57	.64	4.7	19	.32
2	5.0	10	.13	4.2	56	.63	5.3	31	.55
3	4.4	10	.12	4.2	52	.58	3.3	49	.44
4	4.4	10	.11	4.8	50	.60	2.9	53	.42
5	4.5	9	.10	4.7	50	.62	2.9	58	.48
6	4.4	12	.14	4.3	52	.60	2.9	65	.51
7	4.2	27	.31	4.2	56	.63	2.7	71	.49
8	4.2	65	.74	4.2	59	.65	2.5	74	.49
9	4.1	91	.99	3.9	59	.63	2.5	75	.50
10	3.9	89	.93	3.9	55	.57	4.1	137	1.9
11	6.5	84	1.5	3.7	48	.48	2.4	85	.54
12	4.7	82	1.0	3.7	43	.42	2.2	63	.37
13	4.6	57	.71	3.4	27	.25	2.2	44	.26
14	4.4	24	.29	3.5	12	.11	2.2	32	.19
15	4.2	8	.10	3.7	6	.06	2.2	21	.12
16	4.5	6	.09	3.6	7	.06	2.2	12	.06
17	4.7	9	.12	3.3	18	.16	2.1	8	.04
18	4.4	10	.12	3.3	21	.19	2.1	7	.04
19	4.1	13	.14	3.4	12	.11	2.0	9	.05
20	5.2	23	.31	3.5	7	.06	1.9	21	.11
21	4.5	41	.48	3.6	4	.03	1.9	35	.18
22	3.9	55	.60	3.5	3	.02	1.8	40	.20
23	7.3	81	3.0	3.5	4	.03	1.8	39	.19
24	4.5	29	.40	3.5	15	.14	1.8	37	.18
25	4.1	15	.15	3.5	40	.38	1.8	35	.18
26	3.7	11	.10	3.6	40	.38	1.8	35	.18
27	3.7	12	.11	16	204	35	1.8	35	.18
28	4.0	16	.17	5.2	24	.42	1.9	202	.99
29	4.2	37	.42	---	---	---	2.7	41	.33
30	4.2	55	.62	---	---	---	2.4	47	.32
31	4.2	55	.62	---	---	---	1.9	38	.20
TOTAL	139.0	---	14.76	120.1	---	44.45	76.9	---	11.01

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	1.9	24	.13	2.7	24	.17	1.4	8	.02
2	1.9	13	.07	2.7	19	.14	1.2	8	.02
3	1.9	10	.05	2.7	17	.13	1.7	8	.04
4	3.5	18	.19	2.6	16	.11	1.4	13	.06
5	4.4	25	.44	2.7	14	.09	1.4	14	.06
6	3.1	24	.21	2.7	12	.08	5.5	46	2.0
7	2.3	30	.19	3.1	12	.10	1.3	15	.06
8	2.3	33	.20	4.0	14	.16	1.1	13	.03
9	2.3	43	.27	4.0	14	.15	1.2	11	.03
10	e8.8	81	e4.8	3.7	10	.10	1.1	9	.02
11	e11	92	e4.6	3.6	6	.06	1.4	10	.03
12	e24	337	e51	3.1	7	.07	1.1	16	.05
13	e4.8	90	e1.2	3.0	13	.11	1.2	24	.07
14	e4.6	80	e1.0	2.8	18	.14	1.2	30	.09
15	3.4	80	.74	2.5	17	.12	e1.1	31	e.09
16	3.1	80	.67	2.4	14	.09	e1.6	25	e.10
17	5.2	79	1.5	2.4	14	.10	e2.6	15	e.09
18	3.4	65	.65	3.0	23	.23	e2.3	7	e.05
19	12	177	26	2.7	15	.11	e1.8	5	e.03
20	4.3	98	1.2	2.2	10	.06	e1.6	5	e.02
21	3.4	58	.54	1.8	8	.05	e1.6	5	e.02
22	2.9	23	.18	1.7	5	.03	e1.6	5	e.02
23	2.9	14	.11	1.7	3	.02	1.6	5	.02
24	2.8	12	.09	1.6	3	.02	1.6	5	.02
25	2.9	11	.08	2.0	5	.02	1.5	5	.02
26	2.7	9	.07	2.3	5	.03	2.9	12	.14
27	3.0	8	.06	2.1	3	.02	2.0	7	.04
28	4.1	9	.09	1.4	3	.02	1.7	5	.02
29	3.1	14	.11	1.4	3	.02	1.6	5	.02
30	2.8	23	.17	1.5	6	.03	4.0	22	.47
31	---	---	---	1.5	8	.03	---	---	---
TOTAL	138.8	---	96.61	77.6	---	2.61	53.3	---	3.75

e Estimated

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.1	10	.06	3.8	12	.13	2.6	10	.06
2	3.4	18	.42	3.5	10	.09	2.7	10	.06
3	1.8	5	.02	3.2	10	.08	2.1	10	.06
4	1.7	5	.02	2.9	10	.09	1.7	10	.05
5	1.7	5	.02	3.2	10	.09	1.6	10	.04
6	5.4	23	.47	2.9	10	.08	7.2	55	4.4
7	4.4	13	.17	16	248	78	2.7	14	.12
8	3.1	10	.08	5.5	26	.53	2.0	11	.07
9	2.8	9	.07	8.9	52	2.0	1.9	8	.05
10	2.4	9	.06	6.1	25	.50	1.8	7	.03
11	2.4	11	.07	4.9	19	.30	2.3	5	.03
12	2.3	11	.07	3.7	12	.11	1.9	5	.03
13	2.1	11	.06	3.4	10	.09	12	204	78
14	1.9	10	.06	3.1	10	.08	1.8	10	.05
15	1.9	10	.06	3.0	10	.08	2.2	8	.04
16	1.9	10	.06	2.8	10	.07	1.9	6	.03
17	1.9	10	.06	2.5	10	.06	5.6	45	5.3
18	25	357	95	12	95	7.0	2.0	10	.06
19	5.5	21	.40	34	824	387	2.2	11	.07
20	4.2	9	.10	11	60	2.2	48	709	228
21	3.1	8	.06	7.4	33	.74	8.3	63	3.0
22	3.0	8	.06	6.5	24	.42	3.0	48	.41
23	2.9	8	.06	8.1	39	1.5	3.6	39	.82
24	2.8	8	.06	35	598	175	7.4	57	4.2
25	2.5	8	.06	23	264	35	2.4	9	.06
26	2.9	8	.07	8.2	44	1.0	1.8	6	.03
27	3.5	8	.08	9.6	53	2.2	1.7	6	.02
28	4.4	8	.09	224	3600	10800	1.6	36	.16
29	3.9	8	.09	8.4	48	2.0	1.8	6	.02
30	3.6	8	.08	2.9	11	.09	4.5	26	.90
31	5.1	19	.30	2.1	10	.06	---	---	---
TOTAL	115.6	---	98.34	471.6	---	11496.59	142.3	---	326.17
YEAR	2105.8		14715.96						

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDEDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1993							
16...	1915	184	13890	6900	29	42	55
NOV							
17...	1748	60	7920	1280	37	53	69
18...	1450	454	16140	19800	28	38	50
JUL 1994							
02...	1613	13	1570	55	69	70	82
SEP							
20...	1115	144	6150	2390	44	56	68

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1993							
16...	70	82	91	97	99	99.4	100
NOV							
17...	86	95	99	99.8	99.9	100	100
18...	64	78	90	97	99	99.8	100
JUL 1994							
02...	88	89	99	99.7	99.8	100	100
SEP							
20...	80	89	99	99.8	99.9	100	100

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDEED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
06...	1720	9.6	2550	66	100
NOV					
10...	1744	7.9	2170	46	99
18...	1410	298	21000	16900	87
18...	1450	365	6870	6770	92
MAR 1994					
10...	0915	8.7	211	5.0	95
AUG					
09...	1255	6.1	151	2.5	100
SEP					
14...	1740	1.6	242	1.0	99
20...	1015	151	4580	1870	99

RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE, PR

LOCATION.--Lat 18°19'49", long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRANAIGE AREA.--208 mi² (539 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Loiza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm³). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluice gates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 108.52 ft (33.08 m), July 18, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 134.66 ft (41.04 m), Mar. 2; minimum elevation, 108.52 ft (33.08 m), July 18.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

Elevation, in feet	Contents in acre-feet	Elevation, in feet	Contents in acre-feet
98.4	5,000	128.6	18,000
111.5	8,900	137.8	26,000
120.4	13,000	147.6	35,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133.62	133.10	133.28	132.79	132.79	134.50	130.66	122.83	118.26	115.44	112.50	117.88
2	132.98	133.08	133.46	132.85	132.69	134.40	130.40	122.41	117.78	115.42	112.24	117.76
3	133.60	133.00	133.56	132.87	132.57	134.46	130.14	122.01	117.32	115.10	111.86	118.06
4	133.30	132.94	133.70	132.81	132.51	134.42	129.88	121.67	117.20	115.02	111.38	118.16
5	133.48	132.84	132.68	132.83	132.41	134.36	129.60	121.45	116.80	114.74	110.92	118.10
6	133.02	132.74	132.86	132.85	132.31	134.26	129.32	121.35	117.32	114.58	110.44	118.92
7	132.58	132.66	132.90	132.81	132.19	134.20	129.10	121.17	117.48	114.18	110.18	120.08
8	132.86	132.64	132.96	132.75	132.01	134.12	128.84	120.91	117.20	113.82	109.80	120.28
9	132.98	132.68	133.00	132.71	131.85	134.10	128.54	120.95	116.74	113.32	109.44	120.42
10	133.06	132.68	133.03	132.81	131.69	134.22	128.46	121.99	116.29	112.80	109.06	120.58
11	133.10	132.74	133.02	132.95	131.53	134.18	128.44	122.79	115.82	112.22	109.32	120.92
12	133.30	132.68	133.02	133.03	131.35	134.33	128.53	122.84	115.48	111.57	109.46	121.22
13	133.34	132.62	133.00	133.09	131.17	134.35	128.32	122.85	115.12	110.79	109.40	121.26
14	133.38	132.84	132.98	133.49	131.01	134.20	128.13	122.91	114.64	110.00	109.46	121.19
15	133.36	133.52	132.96	133.55	130.97	134.08	127.91	122.93	114.02	109.38	109.48	122.40
16	133.02	132.63	132.94	133.57	130.83	133.92	127.71	122.83	113.88	109.08	109.14	123.48
17	133.44	133.48	132.90	133.57	130.63	133.74	127.47	123.17	114.04	108.62	108.90	124.38
18	133.54	132.98	133.04	133.57	130.45	133.56	127.19	123.07	115.00	114.28	108.70	124.54
19	133.57	132.72	133.06	133.53	130.39	133.36	126.93	122.87	114.98	115.70	109.48	124.72
20	133.60	133.81	133.06	133.53	134.24	133.18	126.61	122.61	114.74	115.92	109.78	132.38
21	133.12	132.76	133.08	133.53	133.89	132.98	126.25	122.29	114.28	115.78	109.70	133.42
22	133.20	133.42	133.04	133.51	134.07	132.78	125.91	121.97	113.84	115.64	109.46	133.80
23	133.36	132.88	133.00	133.53	134.36	132.56	125.59	121.65	113.17	115.30	109.42	133.16
24	133.48	133.26	132.96	133.44	134.06	132.32	125.17	121.33	112.54	115.14	110.28	133.34
25	133.50	133.60	132.90	133.35	134.16	132.12	124.81	121.01	111.86	114.64	115.34	133.38
26	132.70	133.34	132.84	133.26	134.18	131.96	124.44	120.63	114.14	114.41	115.85	133.37
27	132.76	132.82	132.82	133.15	134.24	131.74	124.09	120.37	115.08	113.93	115.96	133.31
28	132.98	133.19	132.90	133.03	134.18	131.56	123.77	119.97	115.04	113.70	117.94	133.18
29	133.14	133.38	132.88	133.01	---	131.32	123.53	119.61	114.90	113.25	118.26	133.03
30	133.14	132.89	132.87	132.95	---	131.12	123.19	119.18	115.00	112.92	118.25	133.00
31	133.10	---	132.81	132.91	---	130.91	---	118.76	---	112.52	118.10	---
MEAN	133.21	133.00	133.02	133.15	132.45	133.33	127.30	121.69	115.33	113.52	111.60	125.32
MAX	133.62	133.81	133.70	133.57	134.36	134.50	130.66	123.17	118.26	115.92	118.26	133.80
MIN	132.58	132.62	132.68	132.71	130.39	130.91	123.19	118.76	111.86	108.62	108.70	117.76

RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'49", long 66°01'00", at pumphouse at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA.--208 mi² (539 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)
OCT 1993												
12...	1215	220	7.1	30.5	3.0	39	19	K30	K90	74	<0.5	13
DEC												
20...	1600	312	7.5	29.0	5.8	75	14	54	42	90	--	1
FEB												
25...	1020	305	7.3	25.0	1.6	20	26	26	20	92	--	11
APR 1994												
29...	0905	348	6.9	28.0	0.2	2	11	K4	K11	110	<0.5	6
JUN												
14...	1050	428	7.0	27.5	0.2	2	28	K34	80	140	--	4
AUG												
12...	0950	451	6.9	28.0	0.5	6	40	52	39	120	--	14

DATE	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO- GEN, TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
12...	0.70	0.70	0.100	30	<10	200	120	<10	<0.010	<1	0.03
DEC											
20...	0.30	0.30	0.150	--	--	--	--	--	--	--	--
APR 1994											
29...	2.1	2.1	0.160	60	<10	90	310	<10	<0.010	2	0.04
JUN											
14...	1.8	1.8	0.150	--	--	--	--	--	--	--	--
AUG											
12...	1.9	1.9	0.130	--	--	--	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR

LOCATION.--Lat 18°20'33" , long 66°00'20", Hydrologic Unit 21010005, on left bank of Highway 175, 1.1 mi (1.8 km) downstream of Lago Loiza Dam.

DRAINAGE AREA.--209 mi² (541 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 32 ft (10 m), from topographic map.

REMARKS.--Records poor. Flow regulated by Lago Loiza Dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.3	6.5	4.8	7.5	6.2	4.1	3.1	2.5	1.9	2.1	e.74	3.0
2	324	7.2	4.3	7.6	6.5	131	3.1	1.9	2.1	2.4	e.68	2.5
3	5.6	7.0	4.4	7.2	6.9	4.4	3.6	1.6	2.1	2.1	e.62	2.4
4	270	6.5	5.3	7.4	6.3	4.7	3.5	1.6	1.6	1.6	e.62	2.2
5	6.1	7.0	335	7.6	6.6	4.2	4.0	1.7	1.5	1.7	e.58	2.2
6	255	6.6	5.9	7.3	5.8	4.8	3.8	1.8	1.4	2.5	e.56	2.5
7	404	6.3	5.8	7.5	6.2	5.4	4.0	2.0	1.5	2.0	e.60	2.9
8	7.4	8.9	6.0	7.4	6.1	4.9	4.6	2.1	1.4	1.9	e.56	3.0
9	6.6	8.5	6.2	7.0	6.0	5.8	4.2	2.1	1.9	1.6	e.54	2.5
10	6.5	7.7	6.5	7.1	6.0	4.5	7.2	2.0	2.1	1.6	e.50	3.1
11	6.4	8.3	6.9	8.0	6.4	5.4	4.6	1.9	2.0	1.5	e.49	11
12	6.3	8.3	6.0	7.3	6.9	4.6	4.3	1.8	2.0	1.4	e.49	11
13	6.3	8.6	6.3	7.2	11	5.1	4.1	1.8	2.2	1.5	e.48	12
14	6.2	9.5	6.6	6.6	13	4.9	4.0	1.9	1.9	1.4	e.48	11
15	6.4	12	6.7	7.0	13	4.8	4.3	1.8	2.4	1.3	e.50	7.2
16	338	1690	6.6	7.2	11	5.2	3.9	3.0	2.2	1.2	e.48	5.3
17	8.2	70	6.5	7.3	10	4.3	3.9	2.1	2.7	1.2	e.49	4.4
18	6.6	1300	7.7	7.2	9.5	4.7	3.7	1.7	2.6	1.4	e.50	4.1
19	5.9	689	7.0	6.6	8.8	4.6	3.1	1.5	1.8	1.5	e.48	4.2
20	6.7	217	6.7	7.2	8.5	4.1	5.0	1.8	1.6	2.1	e.49	3260
21	124	773	7.0	6.5	141	4.4	5.1	1.5	1.4	2.7	e.49	652
22	8.1	5.3	7.0	7.6	6.1	4.2	4.7	2.1	1.7	2.8	e.49	4.6
23	7.3	184	7.5	7.0	5.3	3.9	4.2	1.9	2.0	2.0	9.4	56
24	7.2	5.5	7.3	6.5	140	3.3	3.6	2.2	2.3	1.8	9.4	3.3
25	7.0	5.1	7.2	6.9	4.3	3.0	2.8	2.5	2.6	1.4	3.0	e1.7
26	244	243	7.3	6.1	4.1	2.8	2.5	2.1	2.7	1.0	1.9	e1.7
27	6.9	218	7.4	6.7	4.6	2.9	2.7	2.1	2.5	1.2	1.7	e1.6
28	6.9	5.3	7.7	6.2	4.4	2.9	2.5	2.1	1.5	.99	20	e1.8
29	6.9	4.8	7.3	6.4	---	3.5	2.4	2.4	1.6	.88	6.0	e1.7
30	6.6	236	7.5	5.9	---	3.1	3.4	2.2	1.5	e.80	3.0	e1.7
31	6.5	---	7.5	6.5	---	3.5	---	1.8	---	e.74	2.3	---
TOTAL	2120.9	5764.9	531.9	217.5	470.5	259.0	115.9	61.5	58.7	50.31	68.56	4082.6
MEAN	68.4	192	17.2	7.02	16.8	8.35	3.86	1.98	1.96	1.62	2.21	136
MAX	404	1690	335	8.0	141	131	7.2	3.0	2.7	2.8	20	3260
MIN	5.6	4.8	4.3	5.9	4.1	2.8	2.4	1.5	1.4	.74	.48	1.6
AC-FT	4210	11430	1060	431	933	514	230	122	116	100	136	8100
CFSM	.33	.92	.08	.03	.08	.04	.02	.01	.01	.01	.01	.65
IN.	.38	1.03	.09	.04	.08	.05	.02	.01	.01	.01	.01	.73

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1994, BY WATER YEAR (WY)

	MEAN	269	642	464	171	81.2	57.0	38.9	116	200	184	161	366
MAX	842	2732	2603	733	242	299	112	367	784	672	718	1612	
(WY)	1991	1988	1988	1992	1989	1987	1992	1987	1993	1988	1989	1989	
MIN	44.7	88.6	17.2	5.05	4.52	6.45	3.86	1.98	1.96	1.62	2.21	29.7	
(WY)	1992	1990	1994	1990	1990	1990	1994	1994	1994	1994	1994	1990	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1987 - 1994

ANNUAL TOTAL	53403.7	13802.27	
ANNUAL MEAN	146	37.8	
HIGHEST ANNUAL MEAN			227
LOWEST ANNUAL MEAN			652
HIGHEST DAILY MEAN	11600	Jul 11	3260
LOWEST DAILY MEAN	3.6	Apr 25	.48
ANNUAL SEVEN-DAY MINIMUM	4.1	Apr 22	.49
INSTANTANEOUS PEAK FLOW			33900
INSTANTANEOUS PEAK STAGE			24.91
ANNUAL RUNOFF (AC-FT)	105900	27380	164200
ANNUAL RUNOFF (CFSM)	.70	.18	1.08
ANNUAL RUNOFF (INCHES)	9.51	2.46	14.73
10 PERCENT EXCEEDS	311	9.5	394
50 PERCENT EXCEEDS	7.7	4.4	9.4
90 PERCENT EXCEEDS	5.3	1.4	4.3

e Estimated

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1987 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1986 to September 1994.

INSTRUMENTATION.-- Automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 946 mg/L Jan. 06, 1993; Minimum daily mean, 1 mg/L several days

SEDIMENT LOADS: Maximum daily mean, 98,600 tons (89,400 tonnes) Jan. 05, 1993; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR CURRENT YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 142 mg/L Nov. 18, 1993; Minimum daily mean, 1 mg/L Aug. 21-22, 1994.

SEDIMENT LOADS: Maximum daily mean, 3,380 tons (3,070 tonnes) Sep. 20, 1994; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	7.3	15	.36	6.5	15	.25	4.8	14	.19
2	324	28	162	7.2	15	.30	4.3	13	.14
3	5.6	18	.26	7.0	15	.29	4.4	12	.14
4	270	26	135	6.5	15	.26	5.3	11	.16
5	6.1	17	.28	7.0	16	.32	335	27	164
6	255	23	125	6.6	17	.28	5.9	12	.20
7	404	27	197	6.3	18	.30	5.8	11	.17
8	7.4	15	.30	8.9	19	.45	6.0	10	.16
9	6.6	14	.25	8.5	18	.44	6.2	10	.16
10	6.5	11	.19	7.7	18	.39	6.5	9	.15
11	6.4	6	.10	8.3	19	.43	6.9	9	.16
12	6.3	3	.06	8.3	19	.44	6.0	9	.14
13	6.3	3	.06	8.6	19	.47	6.3	8	.14
14	6.2	3	.05	9.5	20	.53	6.6	8	.15
15	6.4	3	.05	12	21	.70	6.7	8	.14
16	338	22	185	1690	81	772	6.6	7	.12
17	8.2	16	.37	70	49	15	6.5	6	.11
18	6.6	14	.24	1300	142	769	7.7	6	.11
19	5.9	15	.24	689	99	288	7.0	6	.12
20	6.7	15	.28	217	53	58	6.7	6	.10
21	124	23	29	773	57	493	7.0	5	.10
22	8.1	22	.47	5.3	18	.27	7.0	5	.10
23	7.3	21	.41	184	32	45	7.5	5	.10
24	7.2	20	.38	5.5	16	.26	7.3	5	.11
25	7.0	17	.32	5.1	14	.20	7.2	5	.09
26	244	24	99	243	27	103	7.3	4	.08
27	6.9	15	.28	218	24	88	7.4	4	.08
28	6.9	15	.27	5.3	12	.19	7.7	4	.08
29	6.9	14	.26	4.8	9	.11	7.3	4	.08
30	6.6	15	.25	236	24	67	7.5	4	.08
31	6.5	15	.25	---	---	---	7.5	4	.08
TOTAL	2120.9	---	937.98	5764.9	---	2704.88	531.9	---	167.74

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	7.5	4	.09	6.2	9	.15	4.1	10	.11
2	7.6	4	.09	6.5	9	.14	131	26	.44
3	7.2	4	.07	6.9	9	.15	4.4	16	.18
4	7.4	4	.08	6.3	10	.17	4.7	9	.11
5	7.6	4	.08	6.6	10	.17	4.2	8	.09
6	7.3	4	.09	5.8	10	.17	4.8	8	.09
7	7.5	5	.11	6.2	10	.17	5.4	7	.09
8	7.4	5	.10	6.1	10	.15	4.9	7	.09
9	7.0	5	.09	6.0	11	.16	5.8	7	.09
10	7.1	5	.09	6.0	11	.17	4.5	7	.09
11	8.0	5	.10	6.4	12	.20	5.4	7	.09
12	7.3	5	.09	6.9	14	.26	4.6	6	.08
13	7.2	5	.10	11	14	.41	5.1	6	.09
14	6.6	5	.08	13	14	.51	4.9	6	.07
15	7.0	5	.09	13	15	.50	4.8	5	.05
16	7.2	5	.09	11	16	.48	5.2	5	.06
17	7.3	5	.09	10	17	.43	4.3	5	.05
18	7.2	5	.09	9.5	17	.43	4.7	5	.05
19	6.6	6	.10	8.8	18	.42	4.6	5	.05
20	7.2	6	.10	8.5	18	.40	4.1	4	.04
21	6.5	5	.09	141	65	.38	4.4	4	.04
22	7.6	5	.09	6.1	71	1.1	4.2	4	.04
23	7.0	5	.09	5.3	67	.94	3.9	3	.03
24	6.5	5	.09	140	48	.36	3.3	2	.01
25	6.9	5	.09	4.3	17	.19	3.0	2	.01
26	6.1	5	.09	4.1	10	.11	2.8	2	.01
27	6.7	5	.09	4.6	10	.11	2.9	2	.01
28	6.2	6	.09	4.4	10	.10	2.9	2	.01
29	6.4	6	.10	---	---	---	3.5	2	.02
30	5.9	8	.14	---	---	---	3.1	3	.03
31	6.5	9	.14	---	---	---	3.5	3	.03
TOTAL	217.5	---	2.92	470.5	---	82.19	259.0	---	45.81

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	3.1	4	.04	2.5	10	.07	1.9	69	.37
2	3.1	4	.04	1.9	10	.05	2.1	70	.38
3	3.6	4	.04	1.6	12	.05	2.1	71	.37
4	3.5	4	.04	1.6	14	.05	1.6	72	.36
5	4.0	4	.04	1.7	16	.07	1.5	74	.26
6	3.8	5	.05	1.8	18	.09	1.4	75	.30
7	4.0	5	.05	2.0	19	.10	1.5	75	.30
8	4.6	5	.05	2.1	21	.12	1.4	76	.28
9	4.2	5	.05	2.1	25	.13	1.9	75	.36
10	7.2	5	.07	2.0	30	.16	2.1	75	.38
11	4.6	5	.07	1.9	39	.22	2.0	74	.38
12	4.3	5	.05	1.8	41	.20	2.0	72	.36
13	4.1	5	.05	1.8	42	.19	2.2	71	.37
14	4.0	5	.05	1.9	43	.19	1.9	71	.39
15	4.3	4	.04	1.8	45	.21	2.4	70	.40
16	3.9	4	.04	3.0	46	.40	2.2	69	.42
17	3.9	4	.04	2.1	48	.26	2.7	67	.44
18	3.7	4	.04	1.7	50	.24	2.6	66	.44
19	3.1	3	.03	1.5	51	.20	1.8	65	.32
20	5.0	3	.04	1.8	52	.24	1.6	65	.27
21	5.1	3	.04	1.5	54	.23	1.4	66	.26
22	4.7	3	.04	2.1	56	.28	1.7	61	.27
23	4.2	4	.04	1.9	58	.30	2.0	59	.33
24	3.6	4	.04	2.2	59	.36	2.3	57	.31
25	2.8	4	.04	2.5	60	.36	2.6	55	.35
26	2.5	4	.03	2.1	60	.36	2.7	52	.35
27	2.7	5	.04	2.1	62	.32	2.5	49	.31
28	2.5	6	.04	2.1	64	.35	1.5	47	.21
29	2.4	7	.04	2.4	65	.40	1.6	44	.17
30	3.4	9	.08	2.2	66	.38	1.5	41	.16
31	---	---	---	1.8	67	.32	---	---	---
TOTAL	115.9	---	1.35	61.5	---	6.90	58.7	---	9.87

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	2.1	37	.17	.74	15	.02	3.0	5	.04
2	2.4	33	.21	.68	14	.02	2.5	5	.04
3	2.1	29	.16	.62	14	.02	2.4	5	.04
4	1.6	25	.12	.62	14	.02	2.2	5	.04
5	1.7	22	.09	.58	14	.02	2.2	5	.04
6	2.5	17	.10	.56	13	.02	2.5	5	.03
7	2.0	15	.08	.60	13	.02	2.9	5	.04
8	1.9	13	.06	.56	12	.02	3.0	4	.04
9	1.6	11	.05	.54	11	.02	2.5	4	.02
10	1.6	10	.04	.50	11	.02	3.1	7	.06
11	1.5	8	.03	.49	10	.02	11	21	.63
12	1.4	5	.01	.49	8	.02	11	22	.66
13	1.5	7	.02	.48	7	.01	12	21	.66
14	1.4	8	.04	.48	6	.01	11	20	.59
15	1.3	9	.04	.50	5	.01	7.2	19	.39
16	1.2	10	.04	.48	4	.01	5.3	19	.27
17	1.2	10	.04	.49	4	.01	4.4	18	.20
18	1.4	12	.04	.50	3	.01	4.1	17	.17
19	1.5	12	.04	.48	2	.01	4.2	16	.18
20	2.1	12	.06	.49	2	.01	3260	103	3380
21	2.7	14	.10	.49	1	.01	652	47	517
22	2.8	15	.11	.49	1	.01	4.6	10	.12
23	2.0	14	.07	9.4	8	.83	56	16	10
24	1.8	15	.06	9.4	15	.57	3.3	13	.14
25	1.4	15	.05	3.0	9	.07	.1.7	8	.04
26	1.0	15	.04	1.9	8	.04	.1.7	6	.03
27	1.2	15	.05	1.7	5	.02	.1.6	5	.02
28	.99	15	.04	20	15	2.0	.1.8	5	.02
29	.88	15	.04	6.0	15	.30	.1.7	5	.02
30	.80	15	.04	3.0	6	.05	.1.7	4	.02
31	.74	15	.02	2.3	6	.04	---	---	---
TOTAL	50.31	---	2.06	68.56	---	4.17	4082.6	---	3911.55
YEAR	13802.27		7877.42						

• Estimated

RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°21'35", long 66°00'15", 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto plaza, and 2.2 mi (3.5 km) northeast of Lago Loiza Reservoir.

DRAINAGE AREA.--213 mi² (552 km²).

PERIOD OF RECORD.--Water years 1981 to current year.

REMARKS: Flow controlled by Lago Loiza reservoir.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1993											
12...	1020	11	311	8.0	30.5	0.40	7.1	93	13	440	310
DEC 20...	1420	12	235	7.8	29.0	3.0	6.9	89	<10	570	440
FEB 1994											
22...	0835	16	375	7.7	25.0	0.40	4.0	47	33	120	140
APR 29...	0805	8.7	376	7.9	28.0	0.30	5.6	70	<10	K140	K45
JUN 20...	1035	2.6	423	7.6	30.0	1.0	0.8	10	19	290	210
AUG 10...	0800	2.3	475	7.3	27.5	0.50	4.0	50	10	82	290

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
12...	110	27	10	24	1	3.0	110	<0.5	16	22	0.20
DEC 20...	--	--	--	--	--	--	110	--	--	--	--
FEB 1994											
22...	--	--	--	--	--	--	130	--	--	--	--
APR 29...	120	28	12	31	1	2.9	120	<0.5	18	33	0.10
JUN 20...	--	--	--	--	--	--	150	--	--	--	--
AUG 10...	180	44	16	39	1	1.8	190	--	22	46	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
12...	26	194	5.82	<1	<0.20	0.130	1	<100	30	<1	<1
DEC 20...	--	--	--	2	0.30	0.180	--	--	--	--	--
FEB 1994											
22...	--	--	--	4	0.30	0.130	--	--	--	--	--
APR 29...	28	225	5.31	4	--	--	<1	100	50	<1	<1
JUN 20...	--	--	--	5	0.50	0.190	--	--	--	--	--
AUG 10...	32	315	1.92	4	0.30	0.050	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE LOIZA BASIN

50061000 RIO GRANDE DE LOIZA AT CAROLINA, PR

LOCATION.--Lat 18°22'39", long 65°57'08", Hydrologic Unit 21010005, on upstream right bank of Highway 3 bridge, at Km 11.5, 0.5 mi (0.8 km) southeast of Carolina Plaza, 3.3 mi (5.3 km) west of Canóvanas Plaza and 2.5 mi (4.0 km) southwest of Cerro San José, and 8.8 mi (14.2 km) downstream from Rio Grande de Loiza mouth.

DRAINAGE AREA.--243 mi² (629 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--January 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 32.8 ft (10.0 m), from topographic map.

REMARKS.--Flow regulated by Lago Loiza Dam and also by tidal changes. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 33.18 ft (10.113 m), Jan. 6, 1992; minimum, 3.91 ft (1.192 m), Aug. 6, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 17.38 ft (5.297 m), September 20; minimum 4.26 ft (1.298 m), December 12.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.05	5.15	5.36	5.18	5.92	5.26	5.97	6.19	5.51	5.43	5.43	5.45
2	6.12	5.10	5.11	5.30	6.03	6.23	6.05	6.22	5.52	5.49	5.48	5.42
3	5.28	5.20	5.18	5.19	6.12	5.33	6.11	6.24	5.53	5.59	5.55	5.45
4	6.01	5.19	5.25	5.22	6.22	5.09	6.19	6.24	5.62	5.65	5.59	5.54
5	5.31	5.24	6.05	5.26	6.30	5.33	6.25	6.26	5.69	5.69	5.63	5.62
6	5.87	5.23	5.06	5.25	6.34	5.68	6.33	6.30	5.97	5.76	5.63	5.69
7	6.21	5.27	5.01	5.37	6.37	5.88	6.41	6.30	6.32	5.84	5.61	5.77
8	5.51	5.34	4.98	5.17	6.41	6.08	6.48	6.29	6.39	5.69	5.60	5.86
9	5.25	5.42	5.13	5.12	6.44	6.21	6.53	6.29	5.98	5.11	5.62	5.93
10	5.32	5.42	5.09	5.07	6.46	6.37	6.63	6.35	4.96	5.04	5.64	5.97
11	5.35	5.45	4.99	5.30	6.51	6.42	6.32	6.22	4.89	5.09	5.68	6.00
12	5.38	5.39	5.04	5.38	6.57	6.15	5.31	5.14	4.90	5.12	5.70	6.03
13	5.33	5.43	5.19	5.36	6.61	6.13	5.19	5.02	4.91	5.16	5.70	6.05
14	5.34	5.43	5.36	5.17	6.67	6.16	5.19	4.99	4.94	5.13	5.69	6.08
15	5.29	5.82	5.23	5.13	6.53	6.14	5.05	5.02	4.94	5.10	5.68	6.14
16	5.84	8.56	5.16	5.19	5.40	6.29	5.06	5.10	4.99	5.09	5.68	6.23
17	5.87	6.30	5.07	5.34	5.52	6.42	5.11	5.16	5.13	5.06	5.69	6.29
18	5.27	7.55	5.64	5.42	5.70	6.54	5.20	5.22	5.23	5.07	5.73	6.30
19	5.11	7.78	5.67	5.49	5.87	6.61	5.36	5.27	5.19	5.12	5.39	6.08
20	5.15	6.46	5.45	5.55	6.08	6.66	5.49	5.32	5.13	5.19	5.34	8.73
21	5.56	7.21	5.04	5.63	6.86	6.75	5.60	5.34	5.07	5.21	5.41	7.03
22	5.26	5.34	4.98	5.64	5.46	6.82	5.70	5.36	5.03	5.22	5.52	5.41
23	5.14	6.01	4.93	5.60	5.24	6.65	5.76	5.40	5.01	5.18	5.62	5.90
24	5.26	5.17	4.88	5.48	5.99	5.43	5.80	5.41	5.08	5.19	6.13	5.56
25	5.39	5.17	4.80	5.35	5.30	5.18	5.88	5.41	5.16	5.17	5.47	5.15
26	6.14	6.14	4.85	5.30	5.22	5.30	5.96	5.42	5.27	5.22	5.35	5.26
27	5.22	5.59	4.88	5.28	5.23	5.43	6.02	5.45	5.25	5.24	5.32	5.40
28	5.12	5.63	5.01	5.32	5.21	5.54	6.08	5.46	5.29	5.27	5.34	5.36
29	5.09	5.12	4.97	5.46	---	5.64	6.13	5.46	5.34	5.33	5.45	5.40
30	5.22	5.96	5.06	5.62	---	5.77	6.16	5.47	5.39	5.35	5.40	5.39
31	5.08	---	5.10	5.76	---	5.89	---	5.48	---	5.37	5.40	---
MEAN	5.46	5.80	5.15	5.35	6.02	5.98	5.84	5.64	5.32	5.30	5.56	5.88
MAX	6.21	8.56	6.05	5.76	6.86	6.82	6.63	6.35	6.39	5.84	6.13	8.73
MIN	5.08	5.10	4.80	5.07	5.21	5.09	5.05	4.99	4.89	5.04	5.32	5.15

RIO GRANDE DE LOIZA BASIN

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at upstream side of bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loiza.

DRAINAGE AREA.--9.84 mi² (25.48 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	4.3	13	8.0	8.1	6.8	3.1	2.7	2.7	8.9	7.5	3.9
2	16	4.1	11	14	8.7	10	3.1	2.5	2.8	5.4	6.2	3.4
3	11	3.9	11	10	7.9	e10	3.0	e2.6	32	4.8	4.0	5.4
4	10	4.1	10	e9.0	7.3	6.3	3.1	2.5	26	4.4	3.5	5.2
5	9.8	e3.9	11	7.8	8.5	5.2	e3.4	2.7	5.7	4.3	3.0	3.9
6	10	3.6	11	e7.0	6.6	10	3.1	3.5	83	5.9	3.2	4.2
7	14	3.4	9.6	e6.2	6.5	14	3.1	3.8	12	6.6	3.1	9.1
8	10	5.4	9.0	e6.3	6.4	e5.7	3.4	e3.8	5.6	5.8	3.4	9.2
9	7.2	10	8.4	6.2	6.0	7.2	3.3	22	4.3	4.6	3.0	6.9
10	6.2	9.6	8.4	6.6	6.1	6.7	4.0	66	4.2	4.1	3.0	9.3
11	5.8	5.8	8.1	20	5.7	6.2	11	e40	3.9	4.0	5.3	8.8
12	5.4	4.9	7.8	16	5.3	8.4	11	10	8.0	3.8	4.8	5.5
13	5.0	5.9	7.6	9.8	5.3	7.2	5.4	5.9	4.8	3.5	3.4	4.1
14	4.9	28	8.3	13	5.6	4.9	5.5	6.9	4.1	3.2	2.9	4.7
15	4.8	148	10	9.2	e6.6	4.6	6.9	e32	3.7	3.3	2.9	5.6
16	5.1	272	9.2	8.4	6.2	4.7	8.3	5.5	6.9	3.1	2.8	5.5
17	7.1	70	8.0	7.9	5.9	4.2	7.2	11	26	3.0	3.0	8.5
18	8.9	71	15	9.2	5.4	3.6	6.3	5.5	e21	7.9	3.5	5.6
19	6.5	61	13	7.7	5.4	3.5	4.3	e9.9	e9.0	8.9	14	14
20	7.9	27	15	10	89	3.3	3.3	3.8	e5.9	4.3	5.6	176
21	6.6	25	e11	10	29	3.5	2.7	3.6	e4.9	3.5	3.5	28
22	9.6	17	9.3	9.4	29	3.3	2.6	3.2	e4.8	3.6	2.9	10
23	11	15	7.6	8.2	11	3.1	2.6	3.0	5.0	3.5	6.1	9.3
24	6.9	e19	e7.2	7.0	12	e3.4	2.7	3.1	4.5	3.1	14	12
25	5.2	e28	e7.0	6.6	8.8	3.1	2.5	3.1	4.0	3.4	26	7.4
26	4.8	e72	e9.0	6.1	9.3	3.5	2.6	3.1	6.7	2.8	7.4	6.7
27	5.3	e23	e15	6.2	14	2.9	2.6	2.9	6.0	2.7	4.6	7.7
28	9.3	e14	17	6.7	e13	2.9	3.6	3.1	4.8	2.9	8.2	5.5
29	6.6	e13	e11	22	---	3.5	4.2	2.8	5.4	4.0	24	6.0
30	4.9	14	9.1	14	---	3.6	2.9	2.4	9.1	4.4	6.8	4.3
31	4.2	---	7.4	9.0	---	3.5	---	2.6	---	6.0	4.2	---
TOTAL	259.0	985.9	315.0	297.5	338.6	168.8	130.8	275.5	326.8	139.7	195.8	395.7
MEAN	8.35	32.9	10.2	9.60	12.1	5.45	4.36	8.89	10.9	4.51	6.32	13.2
MAX	29	272	17	22	89	14	11	66	83	8.9	26	176
MIN	4.2	3.4	7.0	6.1	5.3	2.9	2.5	2.4	2.7	2.7	2.8	3.4
AC-FT	514	1960	625	590	672	335	259	546	648	277	388	785
CFSM	.85	3.34	1.03	.98	1.23	.55	.44	.90	1.11	.46	.64	1.34
IN.	.98	3.73	1.19	1.12	1.28	.64	.49	1.04	1.24	.53	.74	1.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

	MEAN	42.8	45.9	33.7	23.8	19.1	14.1	15.6	29.7	18.8	18.7	25.4	31.7
MAX	273	125	116	62.4	48.4	36.2	53.2	93.2	63.7	63.7	137	103	
(WY)	1971	1985	1971	1969	1988	1969	1971	1969	1970	1979	1979	1979	1979
MIN	6.74	6.66	5.82	6.66	4.04	3.54	4.36	4.28	2.80	3.72	5.69	5.20	
(WY)	1968	1981	1968	1977	1977	1977	1994	1974	1974	1974	1991	1967	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1967 - 1994
ANNUAL TOTAL	7011.8	3829.1	
ANNUAL MEAN	19.2	10.5	26.9
HIGHEST ANNUAL MEAN			58.0
LOWEST ANNUAL MEAN			10.5
HIGHEST DAILY MEAN	701	272	3160
LOWEST DAILY MEAN	3.4	2.4	.80
ANNUAL SEVEN-DAY MINIMUM	3.9	2.6	1.5
INSTANTANEOUS PEAK FLOW		1210	15000
INSTANTANEOUS PEAK STAGE		6.76	13.10
INSTANTANEOUS LOW FLOW		2.3	.80
ANNUAL RUNOFF (AC-FT)	13910	7600	19510
ANNUAL RUNOFF (CFSM)	1.95	1.07	2.74
ANNUAL RUNOFF (INCHES)	26.51	14.48	37.18
10 PERCENT EXCEEDS	29	15	43
50 PERCENT EXCEEDS	9.6	6.2	12
90 PERCENT EXCEEDS	5.9	3.1	5.1

e Estimated

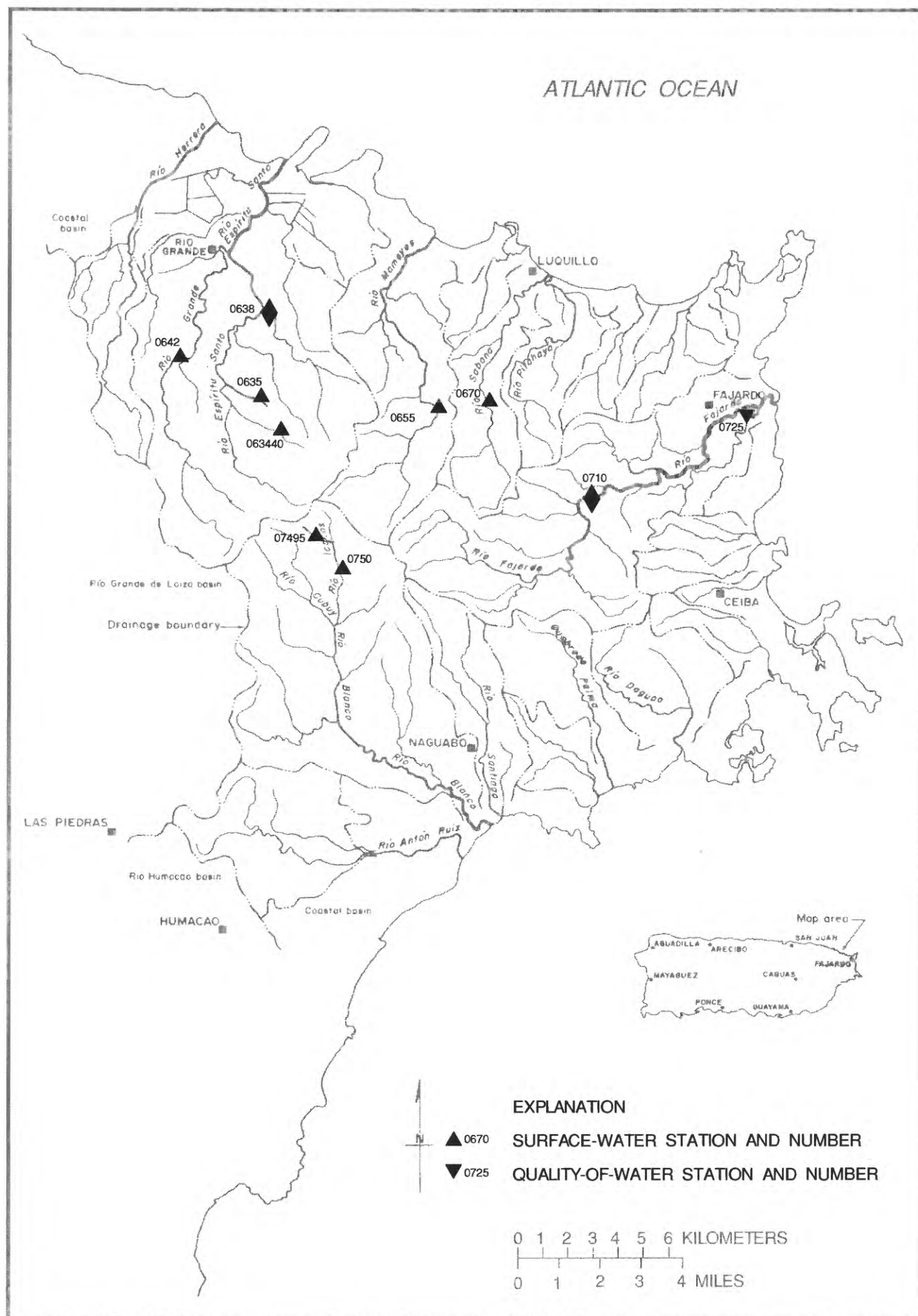


Figure 21.--Northeastern river basins the Río Herrera to Río Antón Ruiz basins.

RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest, at El Yunque, 0.6 mi (1.0 km) upstream from Río Espiritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA.--1.01 mi² (2.62 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.06	.55	17	5.9	1.1	.01	.05	e1.0	4.4	2.0	.69
2	1.0	.04	.22	30	3.6	28	.01	.05	.45	3.0	.72	.98
3	1.5	.03	.10	5.3	1.3	4.0	.01	.05	4.6	3.3	.56	.82
4	1.1	.02	.86	3.6	5.6	1.7	.01	.05	1.6	2.2	.53	.57
5	.83	.01	1.0	4.8	2.5	1.3	.00	9.8	3.8	2.3	.53	.56
6	4.4	.01	.53	2.0	.93	1.1	.00	3.1	23	9.2	.58	5.8
7	5.7	.01	.05	1.6	1.1	1.0	.58	.78	2.0	3.6	.63	8.8
8	1.3	4.4	.02	1.6	1.0	.91	.02	1.2	.87	3.5	.54	7.0
9	1.1	5.1	.02	4.8	.54	.83	.00	13	.65	1.8	.52	2.7
10	.59	1.2	.01	6.0	.51	.90	26	17	.55	1.3	4.7	12
11	.46	.35	.01	16	.29	3.1	37	4.5	1.4	1.1	1.5	4.1
12	.76	.18	.01	5.3	.24	9.1	13	1.2	1.2	.88	.57	1.5
13	.56	8.0	.01	5.0	.15	1.2	.52	.82	.73	.75	.50	1.0
14	.23	9.0	.01	7.8	2.7	.66	3.8	26	.51	.69	1.2	.86
15	.17	32	.01	1.4	.59	.48	14	8.4	2.0	.64	.60	5.1
16	2.9	22	.01	3.0	4.6	.34	16	3.8	2.2	.64	.50	7.3
17	4.4	8.4	.01	5.4	.52	.20	19	2.3	33	.64	.49	3.0
18	1.1	36	3.0	2.0	7.9	.11	7.4	1.7	12	22	15	2.8
19	2.9	3.2	14	1.3	39	.08	e.70	1.2	3.6	2.2	6.8	7.0
20	8.9	2.0	35	11	62	.06	e.26	e.86	1.9	1.1	1.1	46
21	2.3	.78	3.4	5.9	3.9	.05	e.13	e.74	1.3	.87	.64	6.9
22	40	.57	.57	1.7	19	.04	.12	e.62	1.0	.74	1.3	6.4
23	8.5	.36	.34	1.1	3.5	.04	.08	e.54	.80	.66	12	6.5
24	2.3	.34	.41	.81	2.7	.03	.07	e.50	.67	.61	10	5.2
25	.44	.18	.38	.76	2.7	.03	.06	e.47	2.1	.57	8.6	3.1
26	.65	7.9	.36	.61	5.0	.03	.06	.41	41	.54	1.6	2.5
27	.44	.62	18	.59	1.9	.02	.05	.40	4.1	.56	2.9	2.0
28	.45	.10	13	2.7	1.2	.02	.05	.35	2.1	.89	3.5	1.7
29	.16	1.0	1.5	18	---	.05	.05	e.25	3.3	1.9	1.4	1.5
30	.07	2.8	2.3	3.8	---	.02	.05	e.25	31	.99	.82	1.4
31	.05	---	2.5	1.0	---	.01	---	e.27	---	4.6	.65	---
TOTAL	97.26	146.66	98.19	171.87	180.87	56.51	139.04	100.66	184.43	78.17	82.98	155.78
MEAN	3.14	4.89	3.17	5.54	6.46	1.82	4.63	3.25	6.15	2.52	2.68	5.19
MAX	40	36	35	30	62	28	37	26	41	22	15	46
MIN	.05	.01	.01	.59	.15	.01	.00	.05	.45	.54	.49	.56
AC-FT	193	291	195	341	359	112	276	200	366	155	165	309
CFSM	3.11	4.84	3.14	5.49	6.40	1.80	4.59	3.21	6.09	2.50	2.65	5.14
IN.	3.58	5.40	3.62	6.33	6.66	2.08	5.12	3.71	6.79	2.88	3.06	5.74

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

	MEAN	5.95	10.3	7.95	6.51	6.33	5.29	5.16	8.20	5.86	6.49	6.76	6.33
MAX	17.1	20.1	21.6	10.8	12.0	14.7	9.99	15.9	13.7	12.8	14.5	15.6	15.6
(WY)	1986	1985	1988	1988	1988	1990	1987	1992	1987	1983	1988	1989	1989
MIN	.22	2.47	.95	3.41	1.59	1.59	1.09	3.25	.98	2.36	.53	2.34	2.34
(WY)	1993	1991	1990	1985	1992	1993	1984	1985	1985	1991	1993	1986	1986

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1983 - 1994

ANNUAL TOTAL	1802.81	1492.42	
ANNUAL MEAN	4.94	4.09	6.67
HIGHEST ANNUAL MEAN			9.48
LOWEST ANNUAL MEAN			4.09
HIGHEST DAILY MEAN	73	May 2	216
LOWEST DAILY MEAN	.00	Aug 14	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Dec 10	.01
INSTANTANEOUS PEAK FLOW			608
INSTANTANEOUS PEAK STAGE			7.20
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	3580	2960	4830
ANNUAL RUNOFF (CFSM)	4.89	4.05	6.61
ANNUAL RUNOFF (INCHES)	66.40	54.97	89.77
10 PERCENT EXCEEDS	14	10	17
50 PERCENT EXCEEDS	.55	1.1	2.7
90 PERCENT EXCEEDS	.02	.05	.41

e Estimated

RIO ESPIRITU SANTO BASIN

50063500 QUEBRADA TORONJA AT EL VERDE, PR

LOCATION.--Lat 18°19'43", long 65°49'14", Hydrologic Unit 21010005, in Caribbean National Forest, at downstream side of culvert on Highway 186, 0.2 mi (0.3 km) upstream from Rio Espiritu Santo, and about 0.9 mi (1.4 km) south of El Verde.

DRAINAGE AREA.--0.064 mi² (0.166 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1983 to current year.

GAGE.--Water-stage recorder, crest-stage gage and concrete broad-V-notch crested weir. Elevation of gage is 876 ft (267 m), from topographic map.

REMARKS.--Records poor. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e.03	e.05	e.06	e.20	e.12	e.03	e.00	e.06	e.15	e.15	e.15	e.17
2	e.01	e.04	e.09	e2.0	e.09	e.07	e.00	e.05	e.08	e.25	e.09	e.17
3	e.01	e.03	e.09	e.13	e.07	e.03	e.00	.05	e.15	e.26	e.08	e.13
4	e.02	e.03	e.11	e.06	e.07	e.03	e.00	e.07	e.11	e.22	e.09	e.14
5	e.02	e.04	e.11	e.07	e.08	e.01	e.00	e.15	e.18	e.08	e.10	e.11
6	e.02	e.03	e.06	e.05	e.07	e.02	e.02	e.07	e2.3	e.01	e.10	e.21
7	e.02	e.02	e.05	e.07	e.10	e.02	e.01	e.06	e.21	e.03	e.08	e.21
8	e.02	e.10	e.05	e.07	e.08	e.01	e.01	e.06	e.22	e.05	e.12	e.25
9	e.02	e.14	e.05	e.08	e.10	e.02	e.01	e.08	e.19	e.14	e.31	e.18
10	e.01	e.05	e.07	e.08	e.08	e.01	e.83	e.11	e.26	e.15	e.16	e.21
11	e.01	e.06	e.02	e.52	e.07	e.02	e.55	e.05	e.32	e.11	e.13	e.21
12	e.01	e.04	e.05	e.17	e.08	e.04	e.29	e.04	e.86	e.06	e.14	e.14
13	e.01	e.05	e.04	e.13	e.07	e.00	e.07	e.03	e.59	e.03	e.12	e.15
14	e.01	e.15	e.06	e.16	e.14	e.01	e.10	e.33	e.83	e.08	e.14	e.13
15	e.01	e1.3	e.05	e.08	e.10	e.00	e.35	e.07	e.47	e.10	e.15	e.21
16	e.01	e1.2	e.03	e.10	e.13	e.01	e2.2	e.06	e.51	e.09	e.08	e.26
17	e.02	e.72	e.04	e.12	e.10	e.01	e1.4	e.06	e.33	e.10	e.09	e.19
18	e.02	e2.0	e.17	e.06	e.17	e.01	e.29	e.06	e.15	e.13	e.23	e.17
19	e.01	e.16	e.15	e.07	e2.5	e.00	e.10	e.07	e.07	e.15	e.18	e.16
20	e.02	e.10	e1.0	e.19	e4.0	e.01	e.09	e.06	e.23	e.14	e.14	e4.5
21	e.02	e.08	e.11	e.12	e.48	e.01	e.08	e.07	e.11	e.11	e.11	e.29
22	e1.4	e.06	e.07	e.06	e1.8	e.02	e.08	e.07	e.25	e.12	e.15	e.22
23	e.13	e.03	e.08	e.05	e.14	e.01	e.07	e.07	e.29	e.11	e.60	e.79
24	e.02	e.02	e.09	e.06	e.08	e.01	e.07	e.09	e.24	e.08	e.31	e.26
25	e.02	e.01	e.07	e.05	e.07	e.01	e.08	e.10	e.23	e.08	e.21	e.18
26	e.02	e.50	e.07	e.04	e.07	e.01	e.09	e.09	e.78	e.09	e.12	e.14
27	e.01	e.07	e.31	e.05	e.04	e.01	e.08	e.07	e.06	e.08	e.18	e.14
28	e.01	e.05	e.28	e.09	e.04	e.01	e.06	e.08	e.10	e.12	e.15	e.15
29	e.03	e.05	e.07	e.11	---	e.01	e.06	e.09	e.12	e.12	e.13	e.14
30	e.04	e.07	e.06	e.09	---	e.01	e.06	e.08	e1.8	e.11	e.11	e.15
31	e.05	---	e.09	e.08	---	e.02	---	e.08	---	e.18	e.09	---
TOTAL	2.06	7.25	3.65	5.21	10.94	0.49	7.05	2.48	12.19	3.53	4.84	10.36
MEAN	.066	.24	.12	.17	.39	.016	.23	.080	.41	.11	.16	.35
MAX	1.4	2.0	1.0	2.0	4.0	.07	2.2	.33	2.3	.26	.60	4.5
MIN	.01	.01	.02	.04	.04	.00	.00	.03	.06	.01	.08	.11
AC-FT	4.1	14	7.2	10	22	1.0	14	4.9	24	7.0	9.6	21
CFSM	1.11	4.03	1.96	2.80	6.51	.26	3.92	1.33	6.77	1.90	2.60	5.76
IN.	1.28	4.49	2.26	3.23	6.78	.30	4.37	1.54	7.56	2.19	3.00	6.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1994, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1983	.30	1.35	1986	.059	1992
1984	.65	1.56	1987	.15	1991
1985	.49	1.55	1988	.091	1990
1986	.36	1.39	1989	.14	1986
1987	.26	.44	1990	.092	1987
1988	.21	.63	1991	.016	1994
1989	.21	.61	1992	.035	1984
1990	.38	1.17	1993	.080	1994
1991	.29	.61	1987	.056	1991
1992	.34	1.70	1993	.046	1991
1993	.27	.54	1988	.054	1993
1994	.30	.61	1989	.060	1991

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1983 - 1994

ANNUAL TOTAL	197.65	70.05	
ANNUAL MEAN	.54	.19	.34
HIGHEST ANNUAL MEAN			.78
LOWEST ANNUAL MEAN			.17
HIGHEST DAILY MEAN	12 May 2	4.5 Sep 20	12 May 2 1993
LOWEST DAILY MEAN	.01 Apr 7	.00 Mar 13	.00 Mar 13 1994
ANNUAL SEVEN-DAY MINIMUM	.01 Oct 10	.00 Mar 30	.00 Mar 30 1994
INSTANTANEOUS PEAK FLOW		28 Oct 22	101 Aug 13 1990
INSTANTANEOUS PEAK STAGE		1.87 Oct 22	2.61 Aug 13 1990
ANNUAL RUNOFF (AC-FT)	392	139	244
ANNUAL RUNOFF (CFSM)	9.03	3.20	5.60
ANNUAL RUNOFF (INCHES)	122.54	43.43	76.13
10 PERCENT EXCEEDS	1.2	.29	.70
50 PERCENT EXCEEDS	.15	.08	.14
90 PERCENT EXCEEDS	.02	.01	.05

e Estimated

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, at downstream side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km) southeast of Rio Grande.

DRAINAGE AREA.--8.62 mi² (22.33 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1963 (annual low-flow and occasional measurements only), August 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e25	e6.2	e20	e32	e17	e9.4	e6.0	e8.8	e9.2	e27	10	8.9
2	e14	e6.0	e15	e60	e20	e38	e5.8	e8.6	e7.0	e14	5.6	8.9
3	e18	e5.6	e14	e22	e17	e16	e5.5	e7.8	e52	e11	5.5	13
4	e17	e5.4	e14	e17	e21	e10	e5.4	e8.6	e20	e9.6	5.0	9.7
5	e11	e5.2	e21	e14	e17	e9.0	e5.6	e15	e11	e9.0	5.1	8.6
6	e20	e5.1	e20	e11	e12	e8.3	e5.8	e23	e160	e24	5.0	25
7	e44	e5.2	e13	e9.4	e10	e8.0	e14	e11	e19	e19	6.7	29
8	e14	e17	e11	e12	e9.8	e7.8	e18	e16	e10	e17	6.1	41
9	e13	e42	e10	e12	e8.2	e7.8	e6.8	e45	e7.2	e12	7.4	15
10	e10	e32	e9.8	e14	e7.4	e8.8	e25	e120	e6.4	e8.4	18	42
11	e8.2	e13	e8.8	e86	e6.8	e10	e110	e35	e15	e7.2	16	21
12	e7.6	e12	e8.5	e45	e6.2	e38	e74	e15	e21	e6.6	7.4	10
13	e7.2	e35	e8.4	e24	e5.8	e12	e14	e14	e10	e6.4	7.2	8.2
14	e6.6	e90	e8.4	e38	e8.4	e8.8	e27	e58	e8.0	e6.0	8.8	8.8
15	e6.2	e220	e7.8	e16	e9.0	e8.0	e50	e48	e8.4	e9.0	8.1	14
16	e10	e190	e7.6	e17	e9.1	e8.3	e45	e17	e15	e7.0	6.6	24
17	e18	e110	e7.4	e27	e8.4	e7.4	e66	e15	e90	e10	8.0	15
18	e16	e140	e23	e21	e6.2	e7.2	e36	e11	e35	e54	64	11
19	e9.6	e78	e30	e14	e13	e6.8	e21	e14	e15	e20	66	21
20	e24	e32	e67	e44	e340	e6.6	e15	e9.8	e10	e10	17	253
21	e17	e25	e15	e30	e26	e6.4	e14	e8.8	e7.4	e7.2	11	26
22	e56	e24	e11	e21	e25	e6.2	e13	e8.4	e6.6	e6.2	11	20
23	e30	e22	e9.2	e14	e18	e6.6	e12	e8.2	e6.6	e6.0	64	20
24	e12	e23	e8.4	e12	e27	e6.2	e11	e8.0	e6.2	e5.8	50	e17
25	e8.4	e20	e8.4	e12	e15	e5.8	e10	e7.6	e7.0	e5.8	66	e16
26	e8.8	e47	e7.4	e11	e14	e6.0	e9.4	e8.2	e58	e5.6	15	e13
27	e7.4	e35	e30	e10	e20	e11	e9.4	e8.0	e16	e5.6	15	e12
28	e9.4	e19	e64	e38	e12	e6.8	e13	e7.1	e9.6	6.4	21	13
29	e6.8	e16	e17	e90	---	e8.8	e11	e6.9	e21	11	20	13
30	e6.0	e35	e14	e37	---	e9.8	e9.2	e6.6	e100	8.3	10	14
31	e5.8	---	e11	e17	---	e7.4	---	e7.0	---	17	8.5	---
TOTAL	467.0	1315.7	520.1	827.4	709.3	317.2	667.9	585.4	767.6	372.1	575.0	751.1
MEAN	15.1	43.9	16.8	26.7	25.3	10.2	22.3	18.9	25.6	12.0	18.5	25.0
MAX	56	220	67	90	340	38	110	120	160	54	66	253
MIN	5.8	5.1	7.4	9.4	5.8	5.8	5.4	6.6	6.2	5.6	5.0	8.2
AC-FT	926	2610	1030	1640	1410	629	1320	1160	1520	738	1140	1490
CFSM	1.75	5.09	1.95	3.10	2.94	1.19	2.58	2.19	2.97	1.39	2.15	2.90
IN.	2.02	5.68	2.24	3.57	3.06	1.37	2.88	2.53	3.31	1.61	2.48	3.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1994, BY WATER YEAR (WY)

	MEAN	61.5	85.6	73.7	52.2	49.3	39.5	44.3	68.6	46.3	51.0	59.5	55.7
MAX	202	196	179	119	117	153	119	185	120	114	123	191	191
(WY)	1971	1985	1971	1969	1982	1990	1981	1979	1970	1983	1988	1989	1989
MIN	12.3	29.1	16.8	18.5	10.8	10.2	6.27	14.9	10.0	11.1	18.5	17.7	17.7
(WY)	1969	1982	1994	1977	1983	1994	1984	1973	1975	1975	1994	1971	1971

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1966 - 1994

ANNUAL TOTAL	14019.0	7875.8	
ANNUAL MEAN	38.4	21.6	57.7
HIGHEST ANNUAL MEAN			98.6
LOWEST ANNUAL MEAN			21.6
HIGHEST DAILY MEAN	500	Jul 11	2600
LOWEST DAILY MEAN	5.1	Nov 6	4.1
ANNUAL SEVEN-DAY MINIMUM	5.5	Nov 1	4.4
INSTANTANEOUS PEAK FLOW			19200
INSTANTANEOUS PEAK STAGE			15.74
ANNUAL RUNOFF (AC-FT)	27810	15620	41780
ANNUAL RUNOFF (CFSM)	4.46	2.50	6.69
ANNUAL RUNOFF (INCHES)	60.50	33.99	90.90
10 PERCENT EXCEEDS	90	44	123
50 PERCENT EXCEEDS	20	12	25
90 PERCENT EXCEEDS	9.8	6.2	10

e Estimated

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPECIFIC CONDUCTANCE (US/CM)	PH WATER WHOLE FIELD (STANDARD UNITS)	TEMPERATURE WATER (DEG C)	TURBIDITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATURATION)	OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L)	COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREPTOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
22...	1120	33	87	7.3	26.5	6.4	5.0	61	16	280	350
DEC 08...	1145	23	95	7.9	23.3	1.4	8.1	95	<10	210	420
FEB 1994											
18...	0800	61	126	7.3	22.5	45	7.2	81	39	40000	22000
APR 08...	0835	26	72	7.1	23.0	--	7.4	85	--	960	3400
JUN 14...	0805	12	92	7.0	25.0	1.0	4.2	50	<10	210	290
AUG 11...	0815	19	110	6.8	27.0	1.6	3.6	44	23	930	530

DATE	HARDNESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNESIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM ADSORPTION RATIO	POTASSIUM, DIS-SOLVED (MG/L AS K)	ALKALINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS Cl)	FLUORIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
22...	27	6.1	2.9	7.0	0.6	0.80	45	<0.5	2.2	8.4	<0.10
DEC 08...	--	--	--	--	--	--	89	--	--	--	--
FEB 1994											
18...	--	--	--	--	--	--	46	--	--	--	--
APR 08...	--	--	--	--	--	--	18	<0.5	--	--	--
JUN 14...	--	--	--	--	--	--	30	--	--	--	--
AUG 11...	22	5.1	2.2	6.3	0.6	0.60	25	--	2.1	8.4	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	PHOSPHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS Ba)	BORON, TOTAL RECOVERABLE (UG/L AS B)	CADMIUM, TOTAL RECOVERABLE (UG/L AS Cd)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS Cr)
OCT 1993											
22...	16	70	6.23	13	0.30	0.030	<1	<100	20	<1	<1
DEC 08...	--	--	--	<1	<0.20	<0.010	--	--	--	--	--
FEB 1994											
18...	--	--	--	76	0.60	0.090	--	--	--	--	--
APR 08...	--	--	--	29	<0.20	0.010	<1	<100	20	<1	<1
JUN 14...	--	--	--	<1	<0.20	<0.010	--	--	--	--	--
AUG 11...	16	56	2.80	6	<0.20	0.040	--	--	--	--	--

K = non-ideal count

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
22...	10	560	1	20	<0.10	<1	<1	<10	<0.010	<1	0.03
DEC											
08...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994											
18...	--	--	--	--	--	--	--	--	--	--	--
APR											
08...	<10	400	<1	20	<0.10	<1	<1	<10	<0.010	4	0.03
JUN											
14...	--	--	--	--	--	--	--	--	--	--	--
AUG											
11...	--	--	--	--	--	--	--	--	--	--	--

K = non-ideal count

RIO ESPIRITU SANTO BASIN

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'54", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) upstream side of bridge at Hwy 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Rio Grande.

DRAINAGE AREA.--7.31 mi² (18.93 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	5.2	17	28	15	8.0	5.3	5.8	6.0	19	17	6.1
2	12	5.0	13	53	17	33	4.5	5.6	4.6	9.0	6.9	10
3	15	4.7	12	19	15	15	4.2	5.2	34	7.4	4.8	15
4	14	4.5	12	15	18	8.9	4.0	5.7	20	6.4	4.1	6.0
5	8.9	4.4	18	12	15	7.8	4.1	8.8	7.1	5.9	3.8	5.3
6	14	4.3	17	9.5	9.9	7.1	4.6	15	106	16	3.2	24
7	37	4.4	11	8.1	8.8	6.8	12	7.4	13	13	3.0	28
8	12	13	9.1	10	8.4	6.6	15	11	7.0	11	3.0	44
9	11	36	8.7	10	7.1	6.6	5.7	27	4.7	8.1	3.0	14
10	8.8	27	8.4	12	6.4	7.4	17	79	4.3	5.6	4.9	37
11	6.9	11	7.5	76	5.9	8.5	90	27	9.2	4.8	6.2	22
12	6.3	10	7.2	38	5.4	32	63	10	14	4.4	4.4	9.1
13	6.1	25	7.2	21	5.0	11	12	9.5	6.6	4.2	3.2	6.6
14	5.5	87	7.1	33	7.2	7.4	20	38	5.3	4.1	4.0	6.3
15	5.2	184	6.7	14	7.6	6.8	43	32	5.5	3.9	3.5	7.8
16	8.5	161	6.4	15	7.8	6.9	39	11	10	3.8	3.1	21
17	15	97	6.3	23	7.1	6.4	57	9.6	58	3.7	3.0	16
18	13	117	20	18	5.4	6.1	31	7.2	26	30	32	7.5
19	8.1	66	26	12	12	5.8	12	9.1	10	11	47	42
20	20	40	58	38	293	5.6	9.5	6.5	6.6	5.2	7.2	180
21	14	28	15	26	22	5.4	9.2	5.8	4.9	4.0	4.3	13
22	47	20	9.6	18	21	5.2	8.8	5.5	4.4	3.5	4.0	8.7
23	29	20	8.1	12	15	5.5	8.3	5.4	4.4	3.3	47	7.0
24	11	17	7.2	10	23	5.2	7.6	5.3	4.1	3.2	51	15
25	7.1	27	7.2	9.9	13	4.8	7.1	5.1	4.6	3.2	52	7.6
26	7.4	74	6.3	9.2	12	5.1	6.8	5.4	38	3.1	9.6	11
27	6.3	30	25	8.7	17	8.9	6.8	5.3	11	3.1	6.6	8.1
28	7.9	16	56	30	9.9	5.8	8.3	4.7	6.3	3.5	29	7.4
29	5.8	14	15	78	---	7.3	7.5	4.5	14	18	24	7.0
30	5.1	28	12	32	---	8.3	6.1	4.4	69	10	7.4	6.7
31	4.8	---	9.4	15	---	6.4	---	4.7	---	37	5.2	---
TOTAL	393.7	1180.5	449.4	713.4	609.9	271.6	529.4	386.5	518.6	268.4	407.4	599.2
MEAN	12.7	39.3	14.5	23.0	21.8	8.76	17.6	12.5	17.3	8.66	13.1	20.0
MAX	47	184	58	78	293	33	90	79	106	37	52	180
MIN	4.8	4.3	6.3	8.1	5.0	4.8	4.0	4.4	4.1	3.1	3.0	5.3
AC-FT	781	2340	891	1420	1210	539	1050	767	1030	532	808	1190
CFSM	1.74	5.38	1.98	3.15	2.98	1.20	2.41	1.71	2.36	1.18	1.80	2.73
IN.	2.00	6.01	2.29	3.63	3.10	1.38	2.69	1.97	2.64	1.37	2.07	3.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

	MEAN	61.2	71.8	49.7	42.8	30.8	21.8	29.6	56.2	32.4	37.0	42.9	48.1
MAX	392	172	140	151	76.4	54.4	119	203	86.5	109	90.0	153	
(WY)	1971	1970	1971	1969	1969	1969	1978	1969	1968	1969	1968	1975	
MIN	8.45	14.3	13.8	10.1	5.80	4.50	8.55	10.2	6.22	8.66	7.39	12.4	
(WY)	1969	1981	1968	1977	1977	1977	1975	1974	1975	1994	1991	1967	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1967 - 1994

ANNUAL TOTAL	9254.9	6328.0	
ANNUAL MEAN	25.4	17.3	41.8
HIGHEST ANNUAL MEAN			87.1
LOWEST ANNUAL MEAN			17.3
HIGHEST DAILY MEAN	373	Jul 11	3470
LOWEST DAILY MEAN	4.3	Nov 6	2.2
ANNUAL SEVEN-DAY MINIMUM	4.6	Nov 1	2.5
INSTANTANEOUS PEAK FLOW			17400
INSTANTANEOUS PEAK STAGE			15.50
INSTANTANEOUS LOW FLOW			1.6
ANNUAL RUNOFF (AC-FT)	18360	12550	30300
ANNUAL RUNOFF (CFSM)	3.47	2.37	5.72
ANNUAL RUNOFF (INCHES)	47.10	32.20	77.74
10 PERCENT EXCEEDS	57	37	81
50 PERCENT EXCEEDS	12	8.9	17
90 PERCENT EXCEEDS	6.3	4.4	6.8

RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Río de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA.--6.88 mi² (17.82 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e56	24	37	57	30	24	17	14	31	23	e24	e14
2	e38	23	32	73	35	83	15	13	19	18	e15	e15
3	e56	21	28	39	24	37	14	13	28	23	e11	e13
4	e40	21	36	38	42	23	13	16	26	16	e11	e13
5	e30	20	43	38	36	21	13	49	44	16	e9.2	e12
6	e44	20	35	29	27	20	17	26	63	30	e30	e46
7	63	22	25	32	30	19	24	16	23	21	e14	e50
8	38	44	23	31	26	18	20	24	20	24	e11	e40
9	34	57	23	31	22	17	14	56	18	16	e9.6	e22
10	34	36	e23	34	21	18	39	97	17	13	e22	e65
11	34	29	e21	66	21	20	85	44	26	13	e11	e29
12	42	25	20	41	21	56	37	30	21	13	e8.5	e17
13	30	40	20	38	20	20	18	21	20	11	e7.5	e16
14	26	93	20	44	34	16	24	132	15	11	e12	e18
15	24	130	18	28	25	15	37	56	24	9.6	e11	e25
16	74	103	17	28	42	14	65	69	19	9.0	e10	e29
17	69	74	17	38	24	14	73	37	111	10	e10	e20
18	41	129	21	27	57	14	46	24	54	119	e49	e21
19	50	67	76	27	509	13	21	20	25	19	e45	e28
20	53	51	119	36	228	14	18	19	19	13	e30	e139
21	38	42	56	35	54	15	17	18	16	12	e20	e30
22	125	40	27	26	80	14	15	18	15	11	e23	e21
23	83	37	23	e22	39	14	14	17	14	10	e43	e21
24	48	39	22	e18	32	14	14	17	15	10	e37	e19
25	36	33	21	e19	31	14	14	19	19	e8.8	e39	e20
26	39	80	23	e17	34	14	13	17	123	e12	e20	e17
27	43	44	58	e17	27	19	15	16	23	e15	e23	e15
28	49	32	60	e44	23	22	15	16	18	e19	e27	e15
29	32	42	27	e72	---	26	14	21	35	e30	e20	e14
30	28	61	30	e70	---	20	14	17	64	e16	e15	e20
31	25	---	31	e18	---	15	---	19	---	e58	e14	---
TOTAL	1422	1479	1032	1133	1594	663	755	971	965	629.4	631.8	824
MEAN	45.9	49.3	33.3	36.5	56.9	21.4	25.2	31.3	32.2	20.3	20.4	27.5
MAX	125	130	119	73	509	83	85	132	123	119	49	139
MIN	24	20	17	17	20	13	13	13	14	8.8	7.5	12
AC-FT	2820	2930	2050	2250	3160	1320	1500	1930	1910	1250	1250	1630
CFSM	6.67	7.17	4.84	5.31	8.27	3.11	3.66	4.55	4.68	2.95	2.96	3.99
IN.	7.69	8.00	5.58	6.13	8.62	3.58	4.08	5.25	5.22	3.40	3.42	4.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

	MEAN	67.4	82.8	61.3	54.1	41.9	38.4	41.1	66.7	55.8	49.9	52.8	55.8
MAX	240	191	164	105	68.0	79.7	83.1	147	112	93.4	81.4	166	
(WY)	1971	1985	1971	1969	1988	1990	1973	1970	1970	1969	1988	1989	
MIN	20.3	36.3	16.6	25.0	21.7	18.1	14.5	18.7	12.4	20.3	20.4	26.6	
(WY)	1969	1974	1990	1985	1968	1968	1984	1973	1985	1994	1994	1986	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1967 - 1994

ANNUAL TOTAL	19561	12099.2	
ANNUAL MEAN	53.6	33.1	56.4
HIGHEST ANNUAL MEAN			78.0
LOWEST ANNUAL MEAN			33.1
HIGHEST DAILY MEAN	526	Apr 30	2780
LOWEST DAILY MEAN	17	Dec 16	6.9
ANNUAL SEVEN-DAY MINIMUM	19	Dec 11	9.4
INSTANTANEOUS PEAK FLOW			6130
INSTANTANEOUS PEAK STAGE			8.61
INSTANTANEOUS LOW FLOW			5.1
ANNUAL RUNOFF (AC-FT)	38800	24000	40840
ANNUAL RUNOFF (CFSM)	7.79	4.82	8.19
ANNUAL RUNOFF (INCHES)	105.77	65.42	111.34
10 PERCENT EXCEEDS	94	60	102
50 PERCENT EXCEEDS	40	23	33
90 PERCENT EXCEEDS	23	14	16

e Estimated

RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA.--3.96 mi² (10.26 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	6.3	7.7	18	5.0	3.8	1.9	1.7	3.5	2.3	13	1.4
2	8.1	5.9	7.1	23	5.1	6.6	2.5	1.9	2.3	1.8	2.1	1.5
3	10	5.7	5.7	11	4.1	4.0	2.4	1.8	1.9	1.5	1.5	1.6
4	11	5.6	13	6.8	10	2.7	2.2	2.0	1.8	1.5	1.7	1.7
5	6.5	5.6	12	12	5.3	2.5	2.0	2.6	3.7	1.5	1.6	1.6
6	6.6	5.6	6.7	7.6	3.9	2.3	e2.5	2.6	3.4	1.7	4.4	12
7	9.4	6.0	5.8	6.0	4.5	2.2	e3.4	1.8	1.9	1.8	5.3	7.1
8	7.9	7.2	5.3	6.4	4.1	2.1	e2.8	1.8	1.7	2.0	4.5	14
9	6.3	8.0	5.6	6.0	3.0	2.0	e2.3	2.0	1.7	1.5	2.2	2.4
10	7.1	6.1	5.6	6.7	2.6	2.2	e5.6	8.9	1.6	1.4	2.0	30
11	12	5.8	5.1	11	2.5	2.6	e12	13	1.4	1.3	1.6	10
12	11	5.5	4.9	7.4	2.3	9.5	e5.2	7.7	1.6	1.4	1.5	3.1
13	6.6	6.3	4.9	10	2.1	3.2	e2.4	3.3	1.4	1.4	1.5	2.6
14	5.3	16	4.8	11	2.3	2.6	2.0	19	1.2	1.4	1.5	2.5
15	5.2	38	4.6	6.3	2.0	2.2	2.3	11	1.1	1.6	1.5	3.0
16	31	39	4.4	6.0	2.7	2.3	5.2	4.3	1.1	1.5	1.4	3.8
17	13	19	4.3	7.4	1.9	2.4	13	8.3	52	2.2	1.4	3.0
18	10	33	4.7	6.0	12	2.6	7.2	4.3	7.5	151	3.7	3.3
19	27	17	34	5.2	259	2.5	2.3	3.7	2.1	4.5	8.0	2.9
20	16	9.1	46	5.0	70	2.1	2.4	2.9	1.4	2.1	8.5	105
21	8.6	7.5	11	7.2	7.6	2.0	2.0	2.8	1.3	1.7	1.8	14
22	38	6.7	6.9	5.4	14	2.1	2.2	e2.7	1.2	1.6	1.6	11
23	77	6.5	5.3	4.6	4.7	2.0	1.9	e2.4	1.2	1.5	3.5	4.6
24	14	8.8	4.9	4.3	3.9	2.1	1.9	e4.2	1.2	1.5	9.0	3.7
25	13	6.6	4.7	4.2	4.0	1.9	1.8	e7.9	1.3	1.4	1.9	3.5
26	12	23	5.3	4.2	3.7	1.8	1.9	e3.7	51	1.4	1.5	2.8
27	8.9	14	13	4.1	3.6	1.8	2.5	3.1	3.1	1.7	1.6	2.7
28	8.1	7.0	20	6.5	3.3	1.8	2.0	2.8	2.1	1.9	1.6	2.8
29	7.2	11	6.4	27	---	2.2	1.8	4.8	1.9	2.1	1.5	2.8
30	6.7	18	6.1	8.1	---	2.0	1.8	2.7	4.3	1.7	1.4	2.8
31	6.3	---	6.2	4.6	---	1.8	---	2.5	---	40	1.4	---
TOTAL	422.8	359.8	282.0	259.0	449.2	83.9	101.4	144.2	162.9	241.9	95.7	263.2
MEAN	13.6	12.0	9.10	8.35	16.0	2.71	3.38	4.65	5.43	7.80	3.09	8.77
MAX	77	39	46	27	259	9.5	13	19	52	151	13	105
MIN	5.2	5.5	4.3	4.1	1.9	1.8	1.8	1.7	1.1	1.3	1.4	1.4
AC-FT	839	714	559	514	891	166	201	286	323	480	190	522
CFSM	3.44	3.03	2.30	2.11	4.05	.68	.85	1.17	1.37	1.97	.78	2.22
IN.	3.97	3.38	2.65	2.43	4.22	.79	.95	1.35	1.53	2.27	.90	2.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1994, BY WATER YEAR (WY)

	MEAN	21.3	31.1	24.2	12.9	12.1	11.5	12.3	32.6	20.7	15.1	16.0	16.6
MAX	66.4	79.7	64.1	33.0	22.2	36.0	33.5	63.9	50.6	31.3	32.7	56.3	
(WY)	1986	1988	1982	1992	1988	1987	1990	1982	1987	1989	1988	1989	
MIN	6.48	8.15	3.92	6.12	2.94	2.71	2.20	4.65	4.70	5.84	3.09	7.23	
(WY)	1983	1981	1990	1986	1983	1994	1984	1994	1985	1986	1994	1987	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1980 - 1994

ANNUAL TOTAL	5826.3	2866.0		
ANNUAL MEAN	16.0	7.85	18.9	
HIGHEST ANNUAL MEAN			28.2	1988
LOWEST ANNUAL MEAN			7.85	1994
HIGHEST DAILY MEAN	278	Apr 30	259	Feb 19
LOWEST DAILY MEAN	1.9	Apr 25	1.1	Jun 15
ANNUAL SEVEN-DAY MINIMUM	2.2	Apr 21	1.3	Jun 10
INSTANTANEOUS PEAK FLOW			2830	Feb 19
INSTANTANEOUS PEAK STAGE			14.00	Feb 19
INSTANTANEOUS LOW FLOW			.94	Jun 16
ANNUAL RUNOFF (AC-FT)	11560	5680	13700	
ANNUAL RUNOFF (CFSM)	4.03	1.98	4.78	
ANNUAL RUNOFF (INCHES)	54.73	26.92	64.88	
10 PERCENT EXCEEDS	28	13	35	
50 PERCENT EXCEEDS	8.1	3.8	8.3	
90 PERCENT EXCEEDS	3.6	1.5	2.6	

e Estimated

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraíso, and 3.3 mi (5.3 km) southwest of Fajardo.

DRAINAGE AREA.--14.9 mi² (38.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 137.60 ft (41.940 m) above mean sea level.

Due to flood damage, gage datum has had changes as follows: Mar. 24, 1961 to May 5, 1969, 138.95 ft (42.352 m); May 6, 1969 to Mar. 16, 1972, 135.05 ft (41.163 m); Mar. 17, 1972 to Mar 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply about 400 m upstream from gaging station (estimated mean daily discharges is 9.0 ft³/s (0.255 m³/s). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	5.7	e16	50	15	e17	5.9	3.0	10	8.6	14	4.6
2	6.8	5.1	e14	72	20	e52	5.8	3.3	7.8	5.7	7.1	7.4
3	10	4.6	e12	27	11	e21	8.6	2.9	6.5	4.7	5.2	21
4	7.6	4.8	e15	24	32	e14	7.2	3.5	7.0	5.5	4.0	11
5	5.3	4.4	e18	32	15	e13	5.7	16	12	5.7	3.3	6.3
6	5.8	4.1	e15	18	9.5	e12	5.1	10	13	6.7	5.2	66
7	67	4.3	e11	13	9.3	e12	6.7	5.1	7.9	9.6	6.7	78
8	8.2	5.5	e9.8	12	9.2	e11	9.4	7.8	6.2	5.8	4.2	32
9	16	6.4	e8.7	11	7.6	e10	5.7	16	7.5	4.9	3.0	11
10	27	4.7	6.6	10	6.9	e9.5	4.8	98	7.0	3.6	4.5	17
11	11	7.0	5.7	21	6.4	e9.1	91	23	6.7	3.5	3.8	13
12	13	4.1	4.9	16	6.5	e36	12	12	8.5	3.7	3.0	7.0
13	6.8	7.5	4.6	18	6.4	e13	7.2	8.0	8.5	4.1	3.2	5.1
14	5.0	12	4.5	21	14	e10	8.5	185	6.0	3.0	3.5	5.2
15	4.4	77	4.4	11	8.8	e9.2	31	41	4.7	2.9	5.4	4.6
16	16	255	4.2	11	11	e8.9	17	22	4.3	2.9	2.7	8.3
17	85	44	3.9	20	7.3	e8.9	14	19	65	2.8	4.5	6.7
18	17	89	4.1	12	27	e8.9	10	11	17	105	18	5.4
19	25	56	43	9.3	e310	8.5	7.5	9.8	7.8	8.6	55	8.6
20	17	19	168	12	e130	7.9	6.1	8.3	6.0	5.0	11	141
21	19	11	102	15	e33	7.7	5.5	7.8	4.8	3.7	3.8	18
22	133	9.4	30	11	e68	8.3	4.8	7.2	3.9	3.4	7.5	18
23	212	8.4	26	8.3	e38	7.2	4.5	6.7	3.8	3.0	31	12
24	63	7.7	27	7.6	e28	7.7	4.3	6.5	3.7	3.1	25	12
25	15	e14	22	8.8	e25	7.2	4.0	7.2	4.2	3.1	22	9.2
26	16	e34	20	7.6	e27	25	3.5	8.1	26	3.0	8.8	9.2
27	47	e19	56	7.2	e22	7.2	4.4	7.6	6.8	3.2	7.7	8.0
28	19	e13	135	38	e15	6.5	5.3	7.7	5.3	3.9	8.7	7.7
29	9.1	e17	20	77	---	9.9	3.8	8.9	27	13	7.1	7.9
30	7.0	e26	24	18	---	12	3.2	7.9	29	5.7	6.3	7.2
31	6.1	---	15	10	---	7.3	---	7.4	---	106	5.4	---
TOTAL	910.1	779.7	850.4	628.8	918.9	397.9	312.5	587.7	333.9	353.4	300.6	568.4
MEAN	29.4	26.0	27.4	20.3	32.8	12.8	10.4	19.0	11.1	11.4	9.70	18.9
MAX	212	255	168	77	310	52	91	185	65	106	55	141
MIN	4.4	4.1	3.9	7.2	6.4	6.5	3.2	2.9	3.7	2.8	2.7	4.6
AC-FT	1810	1550	1690	1250	1820	789	620	1170	662	701	596	1130
CFSM	1.97	1.74	1.84	1.36	2.20	.86	.70	1.27	.75	.77	.65	1.27
IN.	2.27	1.95	2.12	1.57	2.29	.99	.78	1.47	.83	.88	.75	1.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1994, BY WATER YEAR (WY)

MEAN	94.9	103	79.7	44.6	37.0	35.0	45.1	93.7	59.7	50.2	56.5	84.9
MAX	260	295	237	101	80.4	109	129	399	166	132	159	421
(WY)	1971	1975	1976	1969	1982	1987	1963	1979	1962	1969	1979	1989
MIN	19.1	26.0	14.9	15.4	10.8	9.70	4.02	17.7	10.0	11.4	9.70	18.9
(WY)	1969	1994	1990	1977	1983	1977	1984	1973	1985	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1961 - 1994

ANNUAL TOTAL	15136.4	6942.3	
ANNUAL MEAN	41.5	19.0	65.9
HIGHEST ANNUAL MEAN			140
LOWEST ANNUAL MEAN			19.0
HIGHEST DAILY MEAN	743	Sep 16	310
LOWEST DAILY MEAN	3.9	Dec 17	2.7
ANNUAL SEVEN-DAY MINIMUM	4.4	Dec 12	3.2
INSTANTANEOUS PEAK FLOW			6410
INSTANTANEOUS PEAK STAGE			9.67
INSTANTANEOUS LOW FLOW			
ANNUAL RUNOFF (AC-FT)	30020	13770	47710
ANNUAL RUNOFF (CFSM)	2.78	1.28	4.42
ANNUAL RUNOFF (INCHES)	37.79	17.33	60.05
10 PERCENT EXCEEDS	86	37	125
50 PERCENT EXCEEDS	19	8.7	33
90 PERCENT EXCEEDS	7.7	4.1	11

e Estimated

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

WATER-QUALITY DATA

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCHI FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 1993												
29...	1200	4.7	127	7.2	27.0	3.2	5.7	71	11	690	680	34
DEC												
21...	1312	60	195	7.5	25.0	6.0	8.2	114	<10	5300	440	--
FEB 1994												
25...	0910	25	112	7.1	24.0	0.50	4.4	51	<10	30	220	--
MAY												
05...	0820	4.8	133	7.6	27.5	0.30	6.2	90	<10	K20	350	38
JUN												
16...	0850	4.6	134	7.0	26.5	0.50	4.5	55	14	K50	270	--
AUG												
16...	0830	2.9	127	6.9	28.0	0.20	3.0	38	17	150	1800	37

DATE	HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
29...	7	7.3	3.9	11	0.8	1.3	36	0.8	3.2	9.8	0.10
DEC											
21...	--	--	--	--	--	--	51	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	36	--	--	--	--
MAY											
05...	5	8.3	4.1	13	0.9	1.2	48	<0.5	4.0	14	0.10
JUN											
16...	--	--	--	--	--	--	34	--	--	--	--
AUG											
16...	4	8.5	3.9	12	0.9	0.90	41	--	4.6	14	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
29...	26	84	1.06	3	<0.20	<0.010	<1	100	10	<1	<1
DEC											
21...	--	--	--	1	0.20	<0.010	--	--	--	--	--
FEB 1994											
25...	--	--	--	<1	<0.20	<0.010	--	--	--	--	--
MAY											
05...	28	101	1.30	<1	<0.20	0.010	<1	<100	20	<1	<1
JUN											
16...	--	--	--	4	<0.20	0.020	--	--	--	--	--
AUG											
16...	27	96	0.74	5	<0.20	0.010	--	--	--	--	--

K = non-ideal count

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
29...	<10	330	<1	10	<0.10	<1	<1	<10	<0.010	<1	<0.02
DEC											
21...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
05...	<10	50	1	<10	0.20	<1	<1	<10	<0.010	<1	0.03
JUN											
16...	--	--	--	--	--	--	--	--	--	--	--
AUG											
16...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 16...	0850	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
JUN 1994 16...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUN 1994 16...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	

RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'35", long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo plaza.

DRAINAGE AREA.--23.4 mi² (60.6 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCOI FECAL, (COLS. PER 100 ML)
OCT 1993											
29...	1330	8.9	127	7.2	28.0	6.1	5.7	71	16	5300	440
DEC											
20...	1315	22	186	7.1	26.0	3.1	7.4	89	12	490	K10
FEB 1994											
25...	1055	36	152	7.0	26.0	1.7	6.7	81	<10	330	2400
MAY											
05...	1115	29	221	7.8	27.0	1.4	5.2	65	<10	460	K54
JUN											
16...	1015	10	262	6.8	28.0	0.20	4.0	50	<10	250	K110
AUG											
16...	1015	5.4	162	7.4	30.0	0.50	7.8	101	20	200	250

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
29...	33	7.2	3.6	10	0.8	1.3	38	0.6	4.0	12	0.10
DEC											
20...	--	--	--	--	--	--	44	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	43	--	--	--	--
MAY											
05...	58	14	5.6	19	1	1.1	57	<0.5	6.3	27	0.10
JUN											
16...	--	--	--	--	--	--	47	--	--	--	--
AUG											
16...	49	11	5.2	15	0.9	1.0	46	--	5.6	18	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
29...	23	84	2.01	12	0.30	0.020	<1	<100	30	<1	1
DEC											
20...	--	--	--	2	<0.20	<0.010	--	--	--	--	--
FEB 1994											
25...	--	--	--	8	<0.20	<0.010	--	--	--	--	--
MAY											
05...	24	131	10.3	1	<0.20	0.020	<1	<100	30	<1	<1
JUN											
16...	--	--	--	2	<0.20	0.030	--	--	--	--	--
AUG											
16...	25	109	1.57	5	<0.20	0.020	--	--	--	--	--

K = non-ideal count

RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO BLANCO BASIN

50074950 QUEBRADA GUABA NEAR NAGUABO, PR

LOCATION.--Lat 18°17'02", long 65°47'20", Hydrologic Unit 21010005, on right bank, off Highway 191 at El Yunque Caribbean National Forest, 4.8 mi (7.7 km) southeast of Campamento Eliza Colberg, 1.3 mi (2.1 km) southeast of Mt. Britton, 2.0 mi (3.2 km) northwest of Pico del Este and 7.3 mi (11.7 km) southeast of Río Grande Plaza.

DRAINAGE AREA.--0.05 mi² (0.13 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.41	.21	.41	.36	.31	.30	.12	.18	.19	.16	.27	.12
2	.35	.15	.22	.28	.53	.64	.11	.16	.17	.16	.20	.35
3	.49	.12	.20	.19	.35	.33	.10	.14	.22	.15	.16	.17
4	.42	.12	.23	.17	.51	.22	.09	.20	.19	.17	.16	.13
5	.34	.16	.30	.18	.34	.22	.10	.49	.38	.14	.14	.13
6	.36	.15	.22	.16	.27	.19	.38	.28	.81	.24	.16	.70
7	1.2	.17	.18	.16	.32	.19	.68	.25	.23	.20	.13	.58
8	.50	.39	.15	e.15	.28	.19	.25	.30	.19	.21	.14	.36
9	.57	.49	.17	e.16	.27	.19	.15	.90	.18	.14	.14	.26
10	.47	.26	.17	e.24	.24	.20	.31	.98	.18	.13	.16	.66
11	.45	.21	.13	.47	.23	.35	1.4	.42	.45	.14	.13	.30
12	.41	.16	.14	.26	.21	.65	.66	.28	.26	.13	.13	.22
13	.23	.24	.14	.24	.23	.25	.29	.25	.24	.13	.14	.24
14	.16	.95	.14	.26	.40	.26	.34	.97	.22	.13	.18	.26
15	.16	1.3	.13	.22	.25	.23	.42	.46	.47	.13	.17	.26
16	.51	1.0	.12	.26	.39	.20	.57	.38	.27	.18	.15	.32
17	.77	.48	.12	.32	.24	.20	.60	.33	e1.3	.17	.16	.17
18	.36	.73	.12	.24	.37	.20	.39	.38	e.64	1.1	1.4	.17
19	.43	.36	.69	.30	6.1	.19	.30	.28	e.30	.20	.45	.60
20	.42	.30	.69	.34	2.3	.18	.23	.27	e.23	.13	.23	1.7
21	.29	.22	.19	.32	.44	.16	.22	.22	e.19	.13	.19	.37
22	.48	.25	.16	.25	.37	.15	.24	.22	e.18	.11	.22	.27
23	.53	.26	.15	.18	.41	.18	.25	.20	e.17	.11	.51	.38
24	.30	.24	.16	.19	.32	.17	.25	.20	e.18	.11	.57	.27
25	.25	.26	.13	.17	.36	.15	.22	.22	.21	.11	.36	.23
26	.23	.54	.14	.14	.30	.20	.23	.19	.47	.17	.13	.20
27	.49	.25	.22	.17	.29	.14	.27	.19	.16	.13	.20	.20
28	.35	.24	.46	.75	.25	.13	.27	.18	.25	.35	.38	.20
29	.25	.22	.16	.87	---	.20	.20	.20	.35	.37	.22	.20
30	.22	.36	.17	.43	---	.17	.19	.18	.65	.15	.13	.21
31	.19	---	.21	.31	---	.12	---	.23	---	.95	.12	---
TOTAL	12.59	10.79	6.82	8.74	16.88	7.15	9.83	10.13	9.93	6.83	7.83	10.23
MEAN	.41	.36	.22	.28	.60	.23	.33	.33	.33	.22	.25	.34
MAX	1.2	1.3	.69	.87	6.1	.65	1.4	.98	1.3	1.1	1.4	1.7
MIN	.16	.12	.12	.14	.21	.12	.09	.14	.16	.11	.12	.12
AC-FT	25	21	14	17	33	14	19	20	20	14	16	20
CFSM	3.38	3.00	1.83	2.35	5.02	1.92	2.73	2.72	2.76	1.84	2.10	2.84
IN.	3.90	3.34	2.11	2.71	5.23	2.22	3.05	3.14	3.08	2.12	2.43	3.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

MEAN	.33	.56	.41	.42	.46	.26	.33	.47	.33	.66	.33	.35
MAX	.41	.76	.61	.55	.60	.29	.33	.61	.33	1.18	.56	.38
(WY)	1994	1993	1993	1993	1994	1993	1994	1993	1994	1992	1992	1992
MIN	.25	.36	.22	.28	.32	.23	.32	.33	.32	.22	.19	.34
(WY)	1993	1994	1994	1994	1993	1994	1993	1994	1993	1994	1993	1993

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1992 - 1994
ANNUAL TOTAL	137.88	117.75	
ANNUAL MEAN	.38	.32	.38
HIGHEST ANNUAL MEAN			.43
LOWEST ANNUAL MEAN			.32
HIGHEST DAILY MEAN	4.0 Jul 11	6.1 Feb 19	6.1 Jul 16 1992
LOWEST DAILY MEAN	.12 Aug 29	.09 Apr 4	.09 Apr 4 1994
ANNUAL SEVEN-DAY MINIMUM	.13 Dec 12	.12 Mar 30	.12 Mar 30 1994
INSTANTANEOUS PEAK FLOW		51 Feb 19	64 May 1 1993
INSTANTANEOUS PEAK STAGE		9.86 Feb 19	10.11 May 1 1993
ANNUAL RUNOFF (AC-FT)	273	234	273
ANNUAL RUNOFF (CFSM)	3.15	2.69	3.14
ANNUAL RUNOFF (INCHES)	42.74	36.50	42.67
10 PERCENT EXCEEDS	.62	.55	.78
50 PERCENT EXCEEDS	.26	.23	.27
90 PERCENT EXCEEDS	.16	.14	.16

e Estimated

RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, off Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Río Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

DRAINAGE AREA.--1.26 mi² (3.26 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953-62, annual low-flow measurements 1962-66, October 1979 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.1	4.5	6.8	14	4.7	4.1	e5.6	e3.9	4.2	5.4	6.0	3.0
2	5.8	4.1	5.8	11	7.6	17	e5.4	e4.0	3.6	4.5	4.5	6.8
3	9.0	4.0	5.4	5.5	3.9	5.4	e5.5	e4.5	4.6	4.9	3.9	3.3
4	7.3	3.9	8.2	5.9	8.4	3.7	e4.8	e4.5	3.8	4.9	3.8	3.0
5	4.9	3.9	10	5.4	5.1	3.5	e5.2	e11	9.7	4.3	3.9	2.8
6	5.5	3.8	8.4	4.2	3.7	3.5	e7.3	e6.0	21	8.8	4.8	20
7	25	4.2	5.5	5.5	4.4	3.4	e5.1	e5.4	4.2	6.3	4.3	23
8	6.2	8.7	5.2	4.3	3.7	3.4	e7.8	e6.4	3.8	7.7	4.0	12
9	7.3	10	5.5	4.5	3.6	3.2	e5.2	e19	3.7	5.1	e3.9	8.7
10	5.7	5.3	5.2	7.8	3.4	3.3	e7.0	e21	3.5	4.9	3.7	22
11	5.2	4.5	4.8	16	3.3	4.7	e30	e9.0	12	4.9	3.2	9.0
12	5.5	3.8	5.1	6.7	3.2	14	e15	e6.0	4.9	5.0	3.2	5.9
13	5.1	5.4	4.7	7.2	3.2	4.6	e6.1	e5.4	4.8	4.6	3.4	5.5
14	4.5	25	4.6	5.3	6.2	4.9	e8.4	e21	3.6	4.4	3.8	5.8
15	3.8	42	4.2	4.4	3.6	e6.8	e7.2	e10	7.0	4.4	3.9	7.9
16	11	35	3.4	4.8	6.4	e7.7	e12	e7.2	4.0	5.1	3.9	12
17	18	20	3.4	6.5	3.1	e7.1	e13	5.5	33	4.5	4.0	5.6
18	6.6	36	3.5	3.9	5.6	e6.7	e7.4	6.9	9.3	40	38	5.1
19	9.8	13	19	5.2	119	e6.0	e6.2	5.6	5.9	6.4	14	18
20	8.8	12	25	6.5	81	e5.8	e5.3	4.8	4.9	4.3	4.9	51
21	6.8	7.2	7.5	6.1	10	e5.2	e5.2	4.1	4.6	4.0	3.0	6.9
22	20	7.9	4.5	4.0	8.9	e4.6	e4.5	4.3	4.5	4.0	4.0	6.2
23	13	8.1	4.0	3.8	8.3	e4.1	e5.5	3.9	4.4	3.7	18	9.1
24	5.5	6.5	4.3	3.6	6.0	e4.6	e5.4	3.9	3.7	3.8	13	5.3
25	4.8	7.6	3.6	3.6	5.8	e4.6	e4.4	4.2	4.2	3.7	10	4.2
26	5.3	21	4.6	3.4	4.1	e5.1	e5.0	3.9	19	4.3	4.7	3.5
27	20	8.0	12	3.6	3.7	e4.4	e5.8	3.8	4.3	3.9	6.1	3.2
28	11	6.4	21	17	3.0	e5.7	e4.8	3.8	5.8	11	9.4	3.3
29	5.3	6.4	4.8	17	---	e6.1	e4.5	4.1	14	10	4.7	3.1
30	4.6	15	5.5	5.5	---	e6.2	e4.1	3.8	29	3.8	3.1	3.2
31	4.2	---	6.9	3.8	---	e5.4	---	5.2	---	31	2.9	---
TOTAL	260.6	343.2	222.4	206.0	332.9	174.8	218.7	212.1	245.0	223.6	204.0	278.4
MEAN	8.41	11.4	7.17	6.65	11.9	5.64	7.29	6.84	8.17	7.21	6.58	9.28
MAX	25	42	25	17	119	17	30	21	33	40	38	51
MIN	3.8	3.8	3.4	3.4	3.0	3.2	4.1	3.8	3.5	3.7	2.9	2.8
AC-FT	517	681	441	409	660	347	434	421	486	444	405	552
CFSM	6.67	9.08	5.69	5.27	9.44	4.48	5.79	5.43	6.48	5.72	5.22	7.37
IN.	7.69	10.13	6.57	6.08	9.83	5.16	6.46	6.26	7.23	6.60	6.02	8.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1994, BY WATER YEAR (WY)

	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956
MEAN	15.4	18.4	15.3	12.7	13.4	10.5	12.6	17.1	12.1	13.6	14.1	16.6
MAX	32.1	46.8	31.3	26.9	44.0	26.1	34.4	26.3	20.5	38.8	24.5	37.6
(WY)	1986	1951	1988	1952	1950	1949	1950	1948	1987	1952	1945	1989
MIN	4.78	8.00	4.99	6.65	4.86	3.90	4.77	6.84	5.19	7.21	5.91	7.03
(WY)	1993	1948	1990	1994	1983	1951	1984	1994	1985	1994	1993	1986

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1945 - 1994
ANNUAL TOTAL	3895.1	2921.7	
ANNUAL MEAN	10.7	8.00	14.3
HIGHEST ANNUAL MEAN			21.0
LOWEST ANNUAL MEAN			8.00
HIGHEST DAILY MEAN	68	119	470
LOWEST DAILY MEAN	3.1	2.8	1.5
ANNUAL SEVEN-DAY MINIMUM	4.1	3.4	2.0
INSTANTANEOUS PEAK FLOW		872	2860
INSTANTANEOUS PEAK STAGE		5.89	8.96
ANNUAL RUNOFF (AC-FT)	7730	5800	10340
ANNUAL RUNOFF (CFSM)	8.47	6.35	11.3
ANNUAL RUNOFF (INCHES)	115.00	86.26	153.87
10 PERCENT EXCEEDS	20	15	29
50 PERCENT EXCEEDS	7.2	5.2	8.1
90 PERCENT EXCEEDS	4.5	3.6	4.5

e Estimated

RIO HUMACAO BASIN

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA.--6.65 mi² (17.22 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those above 1,000 ft³/s (28.3 m³/s) and estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	11	20	15	13	15	9.4	8.6	8.6	8.0	8.9	8.1
2	15	11	17	16	14	16	9.1	8.0	7.7	7.9	7.6	19
3	15	11	18	16	14	17	9.0	8.0	7.4	7.8	7.6	11
4	14	11	16	13	15	15	9.0	8.6	7.2	7.3	9.8	12
5	14	11	e15	16	14	14	8.7	8.1	6.5	6.8	e14	9.5
6	38	10	e15	13	14	14	13	9.1	12	6.8	10	28
7	19	11	e15	13	14	14	11	8.4	8.0	7.8	9.6	19
8	15	13	e15	12	13	15	9.3	8.3	7.1	7.4	9.3	14
9	13	12	e14	14	12	13	8.7	40	7.8	6.9	11	13
10	13	16	e14	21	12	26	8.7	51	7.7	6.5	11	14
11	12	12	e14	18	12	13	9.8	17	8.2	6.3	10	12
12	17	11	e14	15	12	35	9.6	17	7.8	6.5	8.9	10
13	20	11	e14	18	12	13	8.7	29	6.9	5.7	8.4	9.6
14	13	16	14	27	13	12	8.7	49	7.2	5.4	7.8	9.2
15	12	15	14	13	13	12	9.0	15	12	5.7	7.7	108
16	12	57	14	12	12	11	8.4	12	10	5.8	7.7	27
17	13	19	13	12	11	11	10	11	13	5.8	7.1	16
18	12	e34	13	12	12	10	10	11	11	56	21	15
19	11	e53	13	12	35	11	9.8	10	8.7	14	13	17
20	11	101	13	11	e198	10	8.9	9.7	7.8	9.4	9.3	337
21	11	36	13	11	21	10	8.7	9.6	7.3	8.2	8.3	30
22	10	23	15	11	16	9.7	9.0	9.0	6.8	7.5	8.3	16
23	14	20	13	11	32	9.4	8.7	9.0	6.7	7.1	8.0	13
24	11	22	13	12	19	9.4	9.4	8.7	6.3	6.5	8.8	12
25	12	24	13	11	17	9.4	9.3	e8.0	6.8	6.2	22	11
26	12	39	12	12	16	10	8.7	e8.8	16	6.9	9.4	9.7
27	13	22	14	11	16	9.4	8.7	e8.2	10	7.3	10	9.1
28	67	20	18	12	16	9.6	13	8.0	11	6.6	9.1	9.0
29	16	18	14	14	---	11	10	7.8	10	6.8	8.7	9.0
30	13	46	13	15	---	12	8.8	7.7	12	6.5	8.4	8.1
31	12	---	13	14	---	9.7	---	8.5	---	9.9	8.2	---
TOTAL	506	716	446	433	618	406.6	283.1	432.1	265.5	273.3	308.9	835.3
MEAN	16.3	23.9	14.4	14.0	22.1	13.1	9.44	13.9	8.85	8.82	9.96	27.8
MAX	67	101	20	27	198	35	13	51	16	56	22	337
MIN	10	10	12	11	11	9.4	8.4	7.7	6.3	5.4	7.1	8.1
AC-FT	1000	1420	885	859	1230	806	562	857	527	542	613	1660
CFSM	2.45	3.59	2.16	2.10	3.32	1.97	1.42	2.10	1.33	1.33	1.50	4.19
IN.	2.83	4.01	2.49	2.42	3.46	2.27	1.58	2.42	1.49	1.53	1.73	4.67

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1994, BY WATER YEAR (WY)

	MEAN	31.1	40.7	32.6	19.3	15.5	11.6	9.26	15.2	15.2	18.7	18.4	30.5
	MAX	74.9	126	112	34.1	22.1	16.4	13.1	42.2	29.0	38.1	32.7	54.1
	(WY)	1975	1988	1988	1992	1994	1989	1976	1992	1992	1993	1977	1975
	MIN	12.8	17.0	11.5	10.8	11.0	9.10	5.88	7.26	5.91	7.95	9.45	10.0
	(WY)	1993	1990	1992	1990	1977	1993	1977	1990	1977	1990	1974	1990

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1974 - 1994

ANNUAL TOTAL	6671.0	5523.8	
ANNUAL MEAN	18.3	15.1	21.6
HIGHEST ANNUAL MEAN			37.6
LOWEST ANNUAL MEAN			12.1
HIGHEST DAILY MEAN	335	337	1670
LOWEST DAILY MEAN	5.2	5.4	2.2
ANNUAL SEVEN-DAY MINIMUM	6.1	5.9	2.8
INSTANTANEOUS PEAK FLOW		1510	20800
INSTANTANEOUS PEAK STAGE		5.50	34.40
ANNUAL RUNOFF (AC-FT)	13230	10960	15680
ANNUAL RUNOFF (CFSM)	2.75	2.28	3.25
ANNUAL RUNOFF (INCHES)	37.32	30.90	44.21
10 PERCENT EXCEEDS	23	20	32
50 PERCENT EXCEEDS	13	12	13
90 PERCENT EXCEEDS	8.0	7.7	6.9

e Estimated

RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°08'49", long 65 49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacao.

DRAINAGE AREA.--17.3 mi² (44.8 km²).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
21...	1345	9.2	396	7.0	31.0	17	4.1	54	16	44000	79000
DEC											
14...	1020	13	250	6.9	23.5	3.2	7.4	86	21	22000	41000XS
FEB 1994											
16...	0955	22	275	7.3	25.0	4.6	5.0	59	27	29000	180
APR											
12...	1105	12	202	7.2	27.0	--	6.0	74	--	2000	K1500
JUN											
27...	1005	17	274	7.1	26.0	5.5	5.4	66	<10	2800	340
AUG											
03...	1020	5.1	409	7.7	28.0	1.3	4.0	51	<10	7000	2000

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
21...	89	24	7.0	26	1	1.8	160	<0.5	11	30	0.20
DEC											
14...	--	--	--	--	--	--	100	--	--	--	--
FEB 1994											
16...	--	--	--	--	--	--	87	--	--	--	--
APR											
12...	93	28	7.3	22	1	1.1	100	<0.5	--	--	--
JUN											
27...	--	--	--	--	--	--	77	--	--	--	--
AUG											
03...	120	36	7.7	32	1	1.6	150	--	12	50	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
21...	40	236	5.86	37	0.30	0.110	<1	<100	20	<1	1
DEC											
14...	--	--	--	14	0.50	0.380	--	--	--	--	--
FEB 1994											
16...	--	--	--	19	0.70	0.230	--	--	--	--	--
APR											
12...	38	254	8.23	7	0.60	0.190	<1	<100	40	<1	<1
JUN											
27...	--	--	--	20	0.30	0.130	--	--	--	--	--
AUG											
03...	41	270	3.76	1	0.30	0.080	--	--	--	--	--

K = non-ideal count

RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'33", long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa plaza.

DRAINAGE AREA.--17.2 mi² (44.6 km²).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
20...	1315	30	163	7.4	27.0	3.7	4.7	62	<10	3800	300
DEC											
15...	1330	28	190	7.6	27.5	9.8	5.8	73	22	4100	390
FEB 1994											
15...	1020	33	144	7.1	23.5	22	2.6	30	<10	1300	1400
APR											
06...	1030	20	180	7.2	25.0	--	3.6	43	--	330	450
JUN											
15...	0945	17	175	7.1	25.0	--	3.2	38	--	K800	K2100
AUG											
03...	0840	18	158	7.1	27.0	7.0	6.0	74	<10	860	590

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
20...	52	13	4.7	15	0.9	1.3	62	<0.5	3.6	12	0.20
DEC											
15...	--	--	--	--	--	--	61	--	--	--	--
FEB 1994											
15...	--	--	--	--	--	--	56	--	--	--	--
APR											
06...	--	--	--	--	--	--	70	<0.5	--	--	--
JUN											
15...	--	--	--	--	--	--	67	--	--	--	--
AUG											
03...	51	13	4.6	15	0.9	1.8	130	--	5.2	14	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
20...	39	126	10.2	10	0.20	0.040	<1	<100	20	<1	<1
DEC											
15...	--	--	--	8	0.60	0.110	--	--	--	--	--
FEB 1994											
15...	--	--	--	30	0.30	0.140	--	--	--	--	--
APR											
06...	--	--	--	12	<0.20	0.030	<1	<100	30	<1	<1
JUN											
15...	--	--	--	7	0.20	0.060	--	--	--	--	--
AUG											
03...	37	169	8.02	6	0.20	0.070	--	--	--	--	--

K = non-ideal count

RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
20...	<10	1100	1	60	<0.10	<1	<1	10	<0.010	<1	0.02
DEC											
15...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994											
15...	--	--	--	--	--	--	--	--	--	--	--
APR											
06...	<10	960	<1	140	<0.10	<1	<1	<10	<0.010	4	<0.02
JUN											
15...	--	--	--	--	--	--	--	--	--	--	--
AUG											
03...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994										
15...	0945	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
DATE		ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OKY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994										
15...		<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
DATE		PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994										
15...		<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanés, and 3.5 mi (5.6 km) northeast of Yabucoa plaza.

DRAINAGE AREA.--34.0 mi² (88.1 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCEI, FECAL, (COLS. PER 100 ML)
OCT 1993											
21...	1100	63	211	7.3	27.0	16	4.5	56	12	2500	210
DEC 15...	1100	74	330	7.5	25.5	5.7	5.8	70	14	4300	310
FEB 1994											
16...	0830	45	199	7.2	24.0	6.9	2.6	30	<10	750	570
APR 12...	0905	35	245	7.1	25.0	--	4.4	52	--	3500	K200
JUN 27...	0840	71	190	6.7	25.0	38	3.0	36	17	4300	2300
AUG 04...	1045	18	179	7.3	29.0	28	5.2	66	<10	1100	1600

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FBT FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
21...	56	14	5.2	20	1	2.4	77	<0.5	6.1	17	0.10
DEC 15...	--	--	--	--	--	--	87	--	--	--	--
FEB 1994											
16...	--	--	--	--	--	--	69	--	--	--	--
APR 12...	--	--	--	--	--	--	60	<0.5	--	--	--
JUN 27...	--	--	--	--	--	--	52	--	--	--	--
AUG 04...	52	13	4.7	17	1	1.9	57	--	6.2	16	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
21...	37	148	25.1	37	0.30	0.060	<1	100	20	<1	<1
DEC 15...	--	--	--	13	0.30	0.090	--	--	--	--	--
FEB 1994											
16...	--	--	--	14	0.30	0.070	--	--	--	--	--
APR 12...	32	127	12.4	28	0.20	0.070	<1	<100	40	<1	<1
JUN 27...	--	--	--	35	0.50	0.140	--	--	--	--	--
AUG 04...	38	131	6.48	42	0.20	0.080	--	--	--	--	--

K = non-ideal count

RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO MAUNABO BASIN

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lizas, about 1.0 mi (1.6 km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi² (13.93 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges and Mar. 20 to July 6, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	8.0	12	17	7.6	10	6.1	5.1	5.5	6.2	e7.0	e6.6
2	11	7.7	10	19	7.8	9.8	5.9	5.1	5.0	5.4	e6.0	e15
3	10	7.5	9.6	11	8.2	12	6.2	5.6	5.3	5.3	e6.0	e8.8
4	11	7.3	10	10	8.8	9.2	5.7	7.0	6.8	4.8	e7.8	e9.6
5	10	7.3	9.8	10	8.0	8.6	5.5	6.3	5.0	4.5	e12	e7.6
6	e14	7.1	9.6	8.9	7.2	8.0	5.3	6.0	6.7	e4.2	e8.0	e22
7	e11	7.4	8.9	8.5	7.7	8.8	5.4	5.6	5.1	e5.8	e7.6	e14
8	11	8.0	8.5	9.1	7.1	8.1	5.1	6.7	4.9	e5.6	e7.4	e11
9	11	7.9	9.3	8.5	6.7	8.6	4.9	14	4.9	e5.2	e8.8	e10
10	9.9	8.0	8.2	7.9	7.5	9.1	4.8	118	4.7	e4.9	e8.8	e11
11	9.5	7.5	7.6	8.9	8.9	12	9.6	13	4.8	e4.7	e8.0	e9.0
12	9.2	7.2	7.5	8.4	6.7	15	6.1	8.1	5.3	e5.0	e7.0	e8.0
13	9.0	7.4	8.6	8.8	6.3	9.0	5.0	37	4.7	e4.4	e6.4	e7.6
14	8.5	12	8.1	7.8	15	7.7	5.1	21	4.4	e4.2	e6.2	e7.2
15	8.0	11	7.8	7.4	8.8	7.1	14	13	11	e4.4	e6.2	e86
16	11	35	7.7	7.3	13	8.0	7.7	50	6.2	e4.5	e6.2	e22
17	9.9	27	7.5	8.0	11	8.1	6.6	17	14	e4.5	e5.6	e13
18	9.2	23	7.4	7.7	8.2	7.9	7.0	10	12	e44	e17	e12
19	9.1	45	7.3	7.4	43	7.7	5.9	8.8	8.5	e11	e10	e14
20	9.2	19	7.4	7.0	100	7.6	5.7	7.9	5.8	e7.2	e7.4	e270
21	8.9	13	7.1	6.9	21	7.3	5.6	7.3	5.1	e6.2	e6.6	e19
22	9.9	16	7.3	6.7	18	7.2	12	7.0	4.6	e5.8	e6.6	e12
23	9.5	12	7.3	6.4	14	8.0	6.8	6.6	4.4	e5.6	e6.4	e10
24	8.9	11	7.5	6.6	13	7.1	6.6	6.2	4.3	e5.0	e7.0	e9.4
25	8.6	11	7.1	6.8	15	6.9	5.8	8.9	5.1	e4.9	e18	e8.6
26	10	18	6.9	6.3	12	7.4	5.4	6.4	50	e5.6	e7.6	e7.6
27	8.5	12	9.1	6.3	11	7.2	5.3	5.9	8.9	e5.8	e8.0	e7.2
28	24	11	15	6.7	10	8.0	5.3	5.9	10	e5.2	e7.2	e7.2
29	10	10	8.8	8.8	---	8.3	5.5	6.6	7.9	e5.4	e7.0	e7.2
30	8.8	32	13	7.4	---	9.2	5.2	5.9	8.9	e5.2	e6.6	e6.6
31	8.3	---	9.0	6.7	---	6.8	---	6.1	---	e7.8	e6.4	---
TOTAL	320.9	416.3	270.9	264.2	411.5	265.7	191.1	438.0	239.8	208.3	246.8	659.2
MEAN	10.4	13.9	8.74	8.52	14.7	8.57	6.37	14.1	7.99	6.72	7.96	22.0
MAX	24	45	15	19	100	15	14	118	50	44	18	270
MIN	8.0	7.1	6.9	6.3	6.3	6.8	4.8	5.1	4.3	4.2	5.6	6.6
AC-FT	637	826	537	524	816	527	379	869	476	413	490	1310
CFSM	1.92	2.58	1.62	1.58	2.73	1.59	1.18	2.63	1.49	1.25	1.48	4.08
IN.	2.22	2.88	1.87	1.83	2.85	1.84	1.32	3.03	1.66	1.44	1.71	4.56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1994, BY WATER YEAR (WY)

	MEAN	27.1	31.3	17.6	12.6	11.2	9.49	7.08	13.5	17.3	17.8	23.3	25.1
MAX	52.6	88.9	35.2	27.1	24.5	18.9	10.8	25.1	47.1	40.2	131	81.5	
(WY)	1979	1978	1978	1992	1982	1976	1976	1979	1979	1993	1979	1979	
MIN	10.4	7.46	8.74	7.79	6.10	4.32	3.92	5.13	4.40	3.70	6.18	7.99	
(WY)	1994	1982	1994	1981	1979	1979	1979	1974	1974	1974	1974	1980	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1971 - 1994
ANNUAL TOTAL	5249.7	3932.7	
ANNUAL MEAN	14.4	10.8	17.9
HIGHEST ANNUAL MEAN			36.7
LOWEST ANNUAL MEAN			10.8
HIGHEST DAILY MEAN	577	Jul 11	2480
LOWEST DAILY MEAN	3.5	Jun 6	2.2
ANNUAL SEVEN-DAY MINIMUM	4.2	Jun 1	2.8
INSTANTANEOUS PEAK FLOW			9950
INSTANTANEOUS PEAK STAGE			17.46
ANNUAL RUNOFF (AC-FT)	10410	7800	12940
ANNUAL RUNOFF (CFSM)	2.67	2.00	3.32
ANNUAL RUNOFF (INCHES)	36.30	27.19	45.12
10 PERCENT EXCEEDS	21	14	32
50 PERCENT EXCEEDS	9.9	7.8	11
90 PERCENT EXCEEDS	5.1	5.2	5.2

e Estimated

RIO MAUNABO BASIN

50091000 RIO MAUNABO AT MAUNABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'24", long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA.--12.4 mi² (32.1 km²).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
20...	1145	8.8	223	7.5	28.5	--	5.8	74	--	K7000	3600
DEC											
16...	1015	9	250	7.4	23.0	2.1	6.1	71	12	16000	3100
FEB 1994											
15...	0825	14	242	7.5	23.5	3.2	2.4	28	92	2100	1000
APR											
06...	0835	8.8	270	7.4	25.0	--	6.0	71	--	320	410
JUN											
15...	0820	9.4	260	7.4	25.0	25	5.0	59	<10	K1800	K1800
AUG											
04...	0840	7.3	257	7.2	27.5	1.0	4.2	52	20	2000	3200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
20...	82	13	6.8	25	<1	1.9	87	<0.5	8.7	29	0.10
DEC											
16...	--	--	--	--	--	--	89	--	--	--	--
FEB 1994											
15...	--	--	--	--	--	--	84	--	--	--	--
APR											
06...	--	--	--	--	--	--	94	0.6	--	--	--
JUN											
15...	--	--	--	--	--	--	87	--	--	--	--
AUG											
04...	78	19	7.3	22	1	2.1	82	--	9.5	21	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
20...	35	131	3.11	9	0.30	0.060	<1	100	30	<1	<1
DEC											
16...	--	--	--	5	0.40	0.050	--	--	--	--	--
FEB 1994											
15...	--	--	--	13	0.30	0.160	--	--	--	--	--
APR											
06...	--	--	--	21	0.20	0.130	<1	<100	30	<1	<1
JUN											
15...	--	--	--	44	<0.20	0.080	--	--	--	--	--
AUG											
04...	38	168	3.29	1	<0.20	0.050	--	--	--	--	--

K = non-ideal count

50091000 RIO MAUNABO AT MAUNABO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO CHICO BASIN

50091800 RIO CHICO AT PROVIDENCIA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 17°59'16", long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas plaza.

DRAINAGE AREA.--4.9 mi² (12.8 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN, DEMAND, CHEM- ICAL (HIGH LEVEL)	COLI- FORM, FECAL, UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993										
29...	0850	3.4	407	7.6	26.5	2.8	7.1	88	17	K130
DEC										
17...	1315	4.5	340	7.4	30.0	52	4.2	55	19	470000
FEB 1994										
24...	0830	4.1	322	7.6	23.0	4.0	4.7	54	32	660
MAY										
02...	0835	0.74	409	7.0	28.5	2.7	2.4	30	47	2600
JUN										
28...	0815	2.9	348	7.2	25.5	5.0	2.4	29	23	61000
AUG										
15...	1000	0.0	418	6.8	30.5	0.70	1.0	13	42	2400

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
29...	87	20	8.9	30	1	2.0	130	<0.5	12	19	0.20
DEC											
17...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
24...	--	--	--	--	--	--	94	--	--	--	--
MAY											
02...	73	19	6.1	49	3	9.1	69	1.2	28	50	<0.10
JUN											
28...	--	--	--	--	--	--	100	--	--	--	--
AUG											
15...	69	18	5.9	50	3	9.0	56	--	27	50	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS Cd)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS Cr)
OCT 1993											
29...	30	184	1.68	11	0.60	0.490	<1	<100	40	<1	<1
DEC											
17...	--	--	--	82	<0.20	0.030	--	--	--	--	--
FEB 1994											
24...	--	--	--	8	1.0	0.880	--	--	--	--	--
MAY											
02...	26	229	0.46	10	2.3	4.30	<1	100	120	<1	<1
JUN											
28...	--	--	--	33	1.4	1.10	--	--	--	--	--
AUG											
15...	25	219	--	3	1.4	2.90	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, at foot bridge, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA.--18.3 mi² (47.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to October 1965 (annual low-flow and occasional measurements only), January 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 235 ft (72 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	20	26	18	9.9	25	13	8.8	9.8	18	e17	21
2	27	20	23	19	11	25	13	8.5	9.3	16	11	24
3	23	19	23	17	10	26	13	8.7	9.2	21	12	20
4	23	19	23	18	11	23	13	10	10	24	12	18
5	21	18	23	19	11	22	12	12	9.4	18	13	18
6	50	18	21	16	9.9	21	13	12	29	16	12	29
7	31	18	20	14	10	21	14	10	13	17	12	28
8	24	20	18	14	9.7	20	13	10	11	16	12	24
9	22	19	18	15	8.9	20	12	52	11	13	12	26
10	21	22	18	18	9.8	26	12	113	9.9	12	20	24
11	21	21	16	15	11	22	14	35	9.8	11	26	73
12	21	18	16	15	9.0	22	13	22	11	10	14	35
13	21	18	17	17	8.8	20	11	25	9.5	9.6	12	23
14	21	24	16	18	13	19	11	19	9.0	9.1	12	20
15	21	21	15	15	13	18	13	25	19	8.7	11	68
16	21	30	15	14	11	18	12	21	18	8.6	10	43
17	22	35	15	14	11	17	12	16	30	9.2	9.7	29
18	20	50	15	15	11	17	14	15	27	115	30	21
19	19	48	14	13	14	16	11	14	17	22	23	65
20	20	31	14	13	126	16	10	13	13	14	15	353
21	21	31	14	12	37	16	10	13	11	12	15	56
22	25	41	14	12	31	15	13	12	10	11	18	25
23	26	23	14	11	31	15	11	12	10	10	16	20
24	23	21	14	11	35	15	11	11	9.6	10	48	20
25	24	18	14	11	26	15	10	12	10	11	58	15
26	24	27	14	11	24	15	9.5	11	108	10	17	16
27	21	25	15	10	23	15	9.5	11	26	10	14	13
28	22	19	19	10	25	14	9.7	10	20	e10	13	12
29	22	17	16	11	---	16	9.3	11	17	e10	14	11
30	21	34	16	11	---	16	9.0	9.8	23	e11	12	11
31	20	---	14	9.9	---	14	---	10	---	e11	14	---
TOTAL	737	745	530	436.9	561.0	580	351.0	572.8	529.5	504.2	534.7	1161
MEAN	23.8	24.8	17.1	14.1	20.0	18.7	11.7	18.5	17.6	16.3	17.2	38.7
MAX	50	50	26	19	126	26	14	113	108	115	58	353
MIN	19	17	14	9.9	8.8	14	9.0	8.5	9.0	8.6	9.7	11
AC-FT	1460	1480	1050	867	1110	1150	696	1140	1050	1000	1060	2300
CFSM	1.30	1.36	.93	.77	1.09	1.02	.64	1.01	.96	.89	.94	2.11
IN.	1.50	1.51	1.08	.89	1.14	1.18	.71	1.16	1.08	1.02	1.09	2.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1994, BY WATER YEAR (WY)

	MEAN	101	94.0	52.1	34.3	27.9	23.9	22.1	53.6	65.9	66.3	71.3	83.8
MAX	593	393	152	125	94.6	43.8	43.4	172	200	164	231	314	
(WY)	1971	1978	1971	1992	1982	1972	1976	1969	1979	1979	1979	1979	
MIN	14.4	16.1	8.63	14.0	7.09	6.74	9.98	10.3	13.1	14.1	17.2	12.1	
(WY)	1968	1968	1968	1973	1973	1968	1968	1974	1974	1974	1994	1967	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1966 - 1994

ANNUAL TOTAL	16598	7243.1	
ANNUAL MEAN	45.5	19.8	
HIGHEST ANNUAL MEAN			57.5
LOWEST ANNUAL MEAN			117
HIGHEST DAILY MEAN	1700	Jul 11	19.8
LOWEST DAILY MEAN	11	May 13	4780
ANNUAL SEVEN-DAY MINIMUM	12	Apr 2	4.8
INSTANTANEOUS PEAK FLOW			5.0
INSTANTANEOUS PEAK STAGE			30900
INSTANTANEOUS LOW FLOW			7.28
ANNUAL RUNOFF (AC-FT)	32920	14370	4.6
ANNUAL RUNOFF (CFSM)	2.48	1.08	May 13 1968
ANNUAL RUNOFF (INCHES)	33.74	14.72	3.14
10 PERCENT EXCEEDS	77	27	42.66
50 PERCENT EXCEEDS	23	16	28
90 PERCENT EXCEEDS	14	10	12

e Estimated

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)	HARD-NESS TOTAL (MG/L AS CaCO3)
OCT 1993												
29...	1055	22	170	7.6	26.0	0.60	7.7	94	<10	830	430	51
DEC												
17...	1110	40	161	8.2	24.5	3.0	8.3	99	<10	290	110	--
FEB 1994												
24...	1035	36	129	7.3	23.5	1.0	8.5	98	<10	320	160	--
MAY												
02...	1040	9.0	177	7.8	28.5	0.40	8.4	106	<10	K110	K150	55
JUN												
28...	1005	21	139	7.0	26.0	1.6	3.2	39	<10	210	K1600	--
AUG												
15...	0855	11	154	7.9	27.0	0.30	8.4	103	<10	140	30000	52

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT 1993												
29...	12	5.2	14	0.8	0.80	52	<0.5	11	11	0.10	23	153
DEC												
17...	--	--	--	--	--	57	--	--	--	--	--	--
FEB 1994												
24...	--	--	--	--	--	38	--	--	--	--	--	--
MAY												
02...	13	5.5	14	0.8	0.60	62	<0.5	13	13	<0.10	24	120
JUN												
28...	--	--	--	--	--	44	--	--	--	--	--	--
AUG												
15...	13	4.8	14	0.8	0.70	59	--	11	12	0.10	21	112

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
29...	9.08	4	--	<0.20	--	0.010	<1	<100	20	<1	<1
DEC											
17...	--	21	0.70	0.70	0.70	0.480	--	--	--	--	--
FEB 1994											
24...	--	6	--	<0.20	--	<0.010	--	--	--	--	--
MAY											
02...	2.93	1	0.50	0.50	0.50	0.370	<1	<100	30	<1	<1
JUN											
28...	--	1	--	<0.20	--	0.010	--	--	--	--	--
AUG											
15...	3.33	6	--	<0.20	--	<0.010	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO SALINAS BASIN

50100200 RIO LAPA NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, Km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA.--9.92 mi² (25.69 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	1.1	1.1	.64	.38	2.0	.32	.19	.03	.04	.00	.04
2	3.5	1.1	1.1	.62	.40	.90	.30	.16	.04	.01	.00	.04
3	3.2	1.1	1.1	.61	.41	.71	.31	.16	.04	.01	.00	.04
4	2.9	1.0	.99	.57	.37	.60	.29	.17	.03	.00	.00	.05
5	2.6	.99	.99	.56	.32	.56	.32	.15	.04	.01	.00	.05
6	2.5	.99	.99	.56	.33	.49	.51	.13	.07	.02	.00	.12
7	2.4	.99	.98	.50	.34	.45	.37	.12	.06	.03	.00	.07
8	2.3	.97	.94	.50	.33	.41	.32	.10	.05	.01	.00	.03
9	2.2	.94	.94	.50	.32	.45	.28	.09	.06	.01	.00	.01
10	2.1	.94	.94	.49	.32	.49	.28	.18	.05	.01	.00	.01
11	2.0	.94	.94	.47	.31	.45	.36	.11	.06	.00	.00	.05
12	2.0	.92	.94	.49	.31	.44	.35	.10	.06	.01	.00	.00
13	2.0	.88	1.1	.49	.27	.43	.38	.10	.06	.00	.00	.00
14	1.9	.88	1.4	.47	.28	.43	.36	.08	.04	.00	.00	.00
15	1.9	.96	1.1	.47	.28	.41	.36	.08	.03	.00	.00	.01
16	2.0	1.1	.92	.47	.28	.39	.34	.08	.03	.00	.00	.00
17	1.7	1.1	.82	.44	.28	.38	.34	.08	.05	.00	.00	.00
18	1.7	1.4	.79	.44	.28	.38	.37	.07	.04	.06	.01	.00
19	1.7	1.3	.82	.44	.28	.36	.37	.08	.03	.04	.00	.00
20	1.7	1.1	.80	.44	.30	.35	.37	.06	.02	.01	.00	1.8
21	1.6	1.1	.74	.44	.30	.33	.35	.03	.02	.00	.00	.35
22	1.7	1.0	.74	.47	.32	.31	.35	.03	.02	.00	.00	.15
23	1.5	.99	.72	.44	.33	.32	.32	.03	.01	.00	.00	.12
24	1.4	1.0	.69	.44	.32	.31	.40	.02	.00	.00	.01	.16
25	1.4	1.1	.69	.41	.31	.35	.37	.02	.00	.00	.02	.12
26	1.4	1.2	.69	.39	.32	.34	.35	.04	.01	.00	.00	.08
27	1.3	1.4	.69	.38	.32	.33	.32	.04	.01	.00	.00	.04
28	1.3	1.3	.69	.35	.29	.35	.28	.04	.03	.00	.00	.01
29	1.3	1.1	.72	.36	---	.34	.26	.04	.04	.00	.00	.00
30	1.3	1.2	.75	.36	---	.33	.21	.05	.04	.00	.00	.00
31	1.2	---	.69	.37	---	.32	---	.04	---	.00	.00	---
TOTAL	62.5	32.09	27.51	14.58	37.61	14.71	10.11	2.67	1.07	0.27	0.04	3.35
MEAN	2.02	1.07	.89	.47	1.34	.47	.34	.086	.036	.009	.001	.11
MAX	4.8	1.4	1.4	.64	.29	2.0	.51	.19	.07	.06	.02	1.8
MIN	1.2	.88	.69	.35	.27	.31	.21	.02	.00	.00	.00	.00
AC-FT	124	64	55	29	75	29	20	5.3	2.1	.5	.08	6.6
CFSM	.20	.11	.09	.05	.13	.05	.03	.01	.00	.00	.00	.01
IN.	.23	.12	.10	.05	.14	.05	.04	.01	.00	.00	.00	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1994, BY WATER YEAR (WY)

	1988	1989	1990	1991	1992	1993	1994
MEAN	16.3	6.86	2.12	12.7	3.22	1.05	1.06
MAX	76.1	28.4	6.09	68.8	12.4	2.08	3.07
(WY)	1991	1991	1991	1992	1991	1992	1993
MIN	1.46	1.07	.89	.47	.49	.44	.28
(WY)	1992	1994	1994	1994	1990	1990	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1988 - 1994
ANNUAL TOTAL	1062.00	206.51	
ANNUAL MEAN	2.91	.57	5.43
HIGHEST ANNUAL MEAN			11.2
LOWEST ANNUAL MEAN			.57
HIGHEST DAILY MEAN	129	29	1080
LOWEST DAILY MEAN	.46	.00	.00
ANNUAL SEVEN-DAY MINIMUM	.50	.00	.00
INSTANTANEOUS PEAK FLOW		677	15700
INSTANTANEOUS PEAK STAGE		9.17	17.82
INSTANTANEOUS LOW FLOW		.00	.00
ANNUAL RUNOFF (AC-FT)	2110	410	3930
ANNUAL RUNOFF (CFSM)	.29	.057	.54
ANNUAL RUNOFF (INCHES)	3.95	.77	7.37
10 PERCENT EXCEEDS	3.5	1.3	6.3
50 PERCENT EXCEEDS	1.2	.32	1.1
90 PERCENT EXCEEDS	.73	.00	.13

RIO SALINAS BASIN

333

50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Hwy 712, about 0.3 mi (0.5 km) southwest of La Plena.

DRAINAGE AREA.--16.7 mi² (43.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to April 1979 (monthly measurements only), September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	e1.6	e1.6	e1.2	.42	10	.41	.20	.01	.08	e.01	e.04
2	4.7	e1.6	e1.6	e1.1	.47	3.7	.43	.18	.01	.08	e.01	e.04
3	3.7	e1.5	e1.6	e1.3	.71	2.1	.39	.18	.01	.07	e.01	e.04
4	3.1	e1.4	e1.4	1.2	.75	1.6	.34	.17	.01	.08	e.01	e.05
5	2.7	e1.4	e1.4	1.2	.80	1.4	.35	.17	.01	.10	e.01	e.05
6	2.8	e1.4	e1.4	1.2	.69	1.2	.46	.17	.01	.10	e.01	e.10
7	2.7	e1.4	e1.4	.99	.48	.92	.53	.18	.02	.10	e.01	e.07
8	2.4	e1.3	e1.3	.92	.53	.89	.45	.19	.10	.10	e.01	e.03
9	2.1	e1.3	e1.3	.89	.47	.81	.43	.18	.06	.09	e.01	e.01
10	1.9	e1.3	e1.3	1.0	.37	.99	.35	1.9	.04	.10	e.01	e.01
11	1.9	e1.4	e1.4	1.1	.46	1.2	.74	1.1	.04	.10	e.01	e.05
12	2.0	e1.3	e1.4	.92	.49	1.0	.77	.23	.05	.11	e.01	e1.1
13	2.0	e1.2	e1.6	1.0	.37	1.1	.53	.17	.05	.11	e.01	e.20
14	1.9	e1.3	e2.0	1.6	.43	.88	.39	.15	.04	.10	e.01	e.15
15	1.7	e1.4	e1.6	1.2	1.3	.88	.36	.14	.04	.10	e.01	e.10
16	1.7	e1.6	e1.3	.97	.68	.91	.33	.13	.04	.10	e.01	e.07
17	3.9	e1.6	e1.3	.84	.57	.79	.30	.12	.05	.09	e.01	e.05
18	3.2	e2.0	e1.3	.88	.44	.57	.32	.11	.05	.15	e.01	e.04
19	e2.4	e1.9	e1.2	.78	.40	.59	.30	.11	.05	1.8	e.01	e.03
20	e2.4	e1.6	e1.3	.65	.43	.58	.28	.11	.05	.54	e.01	e1.2
21	e2.3	e1.6	e1.3	.60	.72	.54	.25	.13	.05	.23	e.01	e.50
22	e2.4	e1.4	e1.2	.56	.75	.53	.23	.12	.05	.16	e.01	e.20
23	e2.2	e1.4	e1.2	.53	.65	.50	.18	.09	.06	.13	e.01	e.10
24	e2.0	e1.4	e1.2	.62	.89	.49	.25	.06	.04	.12	e.01	e.15
25	e2.0	e1.6	e1.1	.65	.74	.46	.28	.04	.03	.11	e.02	e.09
26	e2.0	e1.7	e1.1	.65	.75	.47	.29	.03	.04	.09	e.01	e.08
27	e1.8	e2.0	e1.1	.53	.73	.52	.28	.02	.05	.07	e.01	e.04
28	e1.8	e1.9	e1.1	.53	20	.47	.33	.01	.05	e.08	e.01	e.03
29	e1.8	e1.6	e1.1	.49	---	.44	.31	.02	.07	e.01	e.01	e.02
30	e1.8	e1.7	e1.2	.44	---	.48	.22	.01	.08	e.01	e.01	e.02
31	e1.7	---	e1.3	.43	---	.46	---	.01	---	e.01	e.01	---
TOTAL	80.0	45.8	41.6	26.97	36.49	37.47	11.08	6.43	1.26	5.12	0.32	4.66
MEAN	2.58	1.53	1.34	.87	1.30	1.21	.37	.21	.042	.17	.010	.16
MAX	9.0	2.0	2.0	1.6	20	10	.77	1.9	.10	1.8	.02	1.2
MIN	1.7	1.2	1.1	.43	.37	.44	.18	.01	.01	.01	.01	.01
AC-FT	159	91	83	53	72	74	22	13	2.5	10	.6	9.2
CFSM	.15	.09	.08	.05	.08	.07	.02	.01	.00	.01	.00	.01
IN.	.18	.10	.09	.06	.08	.08	.02	.01	.00	.01	.00	.01

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1994, BY WATER YEAR (WY)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
MEAN	16.1	8.43	3.81	13.7	3.78	1.96	1.70	5.32	4.14	3.59	2.70	8.40
MAX	76.4	25.2	9.67	68.8	12.1	3.92	3.69	25.5	12.1	12.9	7.74	30.1
(WY)	1991	1991	1991	1992	1991	1991	1992	1992	1992	1993	1992	1989
MIN	1.43	1.53	1.22	.87	.63	.59	.37	.21	.042	.17	.010	.16
(WY)	1992	1994	1990	1994	1990	1990	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1973 - 1994
ANNUAL TOTAL	1431.91	297.20	
ANNUAL MEAN	3.92	.81	6.16
HIGHEST ANNUAL MEAN			12.1
LOWEST ANNUAL MEAN			.81
HIGHEST DAILY MEAN	152 Jul 11	20 Feb 28	1520 Jan 5 1992
LOWEST DAILY MEAN	.54 Apr 8	.01 May 28	.01 May 28 1994
ANNUAL SEVEN-DAY MINIMUM	.67 Apr 2	.01 May 30	.01 May 30 1994
INSTANTANEOUS PEAK FLOW		142 Feb 28	1520 Jan 5 1992
INSTANTANEOUS PEAK STAGE		4.64 Feb 28	17.19 Jan 5 1992
ANNUAL RUNOFF (AC-FT)	2840	589	4460
ANNUAL RUNOFF (CFSM)	.23	.049	.37
ANNUAL RUNOFF (INCHES)	3.19	.66	5.01
10 PERCENT EXCEEDS	6.3	1.8	8.6
50 PERCENT EXCEEDS	2.1	.46	2.0
90 PERCENT EXCEEDS	1.1	.01	.31

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR

LOCATION.--Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, on Highway 14 bridge, 0.8 mi (1.3 km) northeast from Parque Atlético, 1.2 mi (1.9 km) southeast from (W.C.P.R.) Antena de Radio.

DRAINAGE AREA.--3.5 mi² (112.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 335 ft (110 m), from topographic map.

REMARKS.--Records poor. Low flow is affected by domestic discharges about 200 ft (65.6 m), upstream from gaging station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	8.3	7.1	5.4	2.9	42	1.5	3.2	1.9	2.0	1.0	1.3
2	16	9.1	7.0	5.3	3.0	5.4	1.6	3.3	1.4	1.8	1.3	1.5
3	14	8.4	6.3	5.1	3.2	e3.5	1.7	3.6	1.6	1.9	1.3	1.9
4	18	7.7	6.9	4.8	2.6	e3.3	1.6	3.6	1.8	2.4	1.2	2.5
5	16	18	7.3	4.6	2.9	3.1	1.7	3.5	1.8	2.3	1.2	.94
6	14	8.6	7.0	4.7	3.1	3.2	21	3.6	1.7	1.8	1.1	1.5
7	13	7.3	6.3	4.3	3.2	3.2	7.2	3.8	1.7	2.3	2.6	1.0
8	12	7.5	6.3	4.3	3.0	3.1	3.8	3.7	1.7	2.1	1.5	.95
9	12	7.4	6.1	4.5	2.7	2.5	3.1	3.2	1.5	2.0	1.3	1.0
10	11	7.3	6.5	4.2	2.7	2.4	3.1	4.2	1.8	2.2	1.2	.99
11	11	6.5	5.8	3.8	2.5	2.5	2.9	3.3	1.9	2.9	1.1	1.4
12	10	6.3	6.5	4.2	2.4	2.6	3.0	3.1	2.1	2.4	1.2	1.3
13	10	6.0	7.6	4.0	2.9	2.5	2.7	3.3	2.2	2.2	1.2	1.4
14	9.6	6.9	17	4.2	3.0	4.1	2.8	3.3	2.3	2.3	1.1	1.5
15	9.2	7.5	11	4.1	2.8	5.0	2.7	3.5	2.2	2.6	1.0	1.7
16	9.6	12	7.7	4.1	2.9	2.8	2.7	3.3	2.1	2.8	1.1	1.7
17	23	11	7.2	4.0	2.9	2.5	3.1	3.3	2.3	2.4	1.1	1.7
18	16	12	6.5	4.0	2.6	2.4	2.8	3.6	2.5	3.6	1.1	1.8
19	11	14	6.2	3.9	2.4	2.5	2.5	3.6	2.5	2.4	1.4	1.8
20	10	11	5.9	3.8	3.3	2.3	2.5	3.6	2.5	2.2	1.5	2.3
21	9.3	9.5	5.9	3.8	2.6	2.2	2.6	4.0	2.5	1.9	1.2	2.4
22	9.9	8.3	5.7	3.7	2.6	2.1	2.5	4.1	2.7	1.4	1.2	2.1
23	9.6	7.9	5.5	3.7	2.8	2.0	2.7	3.4	2.6	1.4	1.1	2.1
24	9.8	7.5	5.4	3.6	2.6	2.0	2.9	4.0	2.3	1.3	1.4	2.5
25	9.3	7.7	5.3	3.2	2.6	2.0	2.8	3.3	2.5	1.3	1.5	1.8
26	8.1	8.1	5.5	3.1	2.6	2.0	3.8	2.3	2.9	1.4	1.3	1.6
27	18	8.6	5.4	3.2	3.0	1.9	4.8	2.5	2.8	1.3	1.3	1.5
28	20	10	5.3	3.1	31	1.7	4.2	2.1	2.5	1.3	1.3	1.4
29	15	8.3	5.2	3.0	---	1.7	3.0	2.3	2.3	1.1	1.4	1.4
30	10	7.5	5.2	3.2	---	1.6	3.0	2.1	2.2	1.1	1.3	1.3
31	8.7	---	5.0	3.0	---	1.5	---	1.8	---	1.1	1.2	---
TOTAL	402.1	266.2	207.6	123.9	106.8	121.6	106.3	101.5	64.8	61.2	39.7	48.28
MEAN	13.0	8.87	6.70	4.00	3.81	3.92	3.54	3.27	2.16	1.97	1.28	1.61
MAX	29	18	17	5.4	31	42	21	4.2	2.9	3.6	2.6	2.5
MIN	8.1	6.0	5.0	3.0	2.4	1.5	1.5	1.8	1.4	1.1	1.0	.94
AC-FT	798	528	412	246	212	241	211	201	129	121	79	96
CFSM	.30	.20	.15	.09	.09	.09	.08	.08	.05	.05	.03	.04
IN.	.34	.23	.18	.11	.09	.10	.09	.09	.06	.05	.03	.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1994, BY WATER YEAR (WY)

	MEAN	65.2	31.1	21.2	22.7	9.49	5.88	11.4	17.4	17.7	8.00	9.71	23.6
MAX	274	62.9	83.8	79.0	17.0	9.79	27.6	69.6	76.1	15.5	23.3	66.6	
(WY)	1991	1988	1988	1992	1988	1988	1987	1992	1987	1988	1990	1989	
MIN	10.3	8.62	3.72	2.85	3.17	3.09	2.53	1.66	1.99	1.78	1.28	1.61	
(WY)	1989	1992	1989	1989	1989	1987	1989	1989	1989	1989	1994	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1987 - 1994

ANNUAL TOTAL	4298.1	1649.98	
ANNUAL MEAN	11.8	4.52	19.6
HIGHEST ANNUAL MEAN			36.8
LOWEST ANNUAL MEAN			4.52
HIGHEST DAILY MEAN	109	42	1580
LOWEST DAILY MEAN	3.8	.94	.67
ANNUAL SEVEN-DAY MINIMUM	4.0	1.1	.70
INSTANTANEOUS PEAK FLOW		389	20800
INSTANTANEOUS PEAK STAGE		6.75	34.40
INSTANTANEOUS LOW FLOW			1.1
ANNUAL RUNOFF (AC-FT)	8530	3270	14200
ANNUAL RUNOFF (CFSM)	.27	.10	.45
ANNUAL RUNOFF (INCHES)	3.68	1.41	6.12
10 PERCENT EXCEEDS	17	9.6	39
50 PERCENT EXCEEDS	8.6	2.9	7.1
90 PERCENT EXCEEDS	5.2	1.3	2.0

e Estimated

RIO COAMO BASIN

335

50106500 RIO COAMO NEAR COAMO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'52", long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Rio de la Mina, and 1.8 mi (2.9 km) south of Coamo plaza.

DRAINAGE AREA.--46.0 mi² (119.1 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
13...	1230	15	623	7.5	30.5	0.90	5.0	71	<10	510	330
DEC 23...	1100	13	686	7.8	26.5	2.4	5.3	66	25	K86000	22000
FEB 1994											
25...	1210	6.7	644	7.4	29.0	1.5	9.0	85	17	5900	54
MAY 04...	0825	5.4	669	7.5	26.5	0.70	4.0	49	14	14000	2200
JUN 24...	1025	3.5	782	7.5	29.0	0.80	1.9	24	30	K7000	K1800
AUG 23...	0820	2.1	589	7.5	27.5	1.0	1.2	15	14	410	1400

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
13...	230	60	19	38	1	4.4	240	<0.5	40	42	0.30
DEC 23...	--	--	--	--	--	--	260	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	220	--	--	--	--
MAY 04...	250	67	20	45	1	4.9	250	<0.5	38	48	0.20
JUN 24...	--	--	--	--	--	--	290	--	--	--	--
AUG 23...	250	66	20	41	1	4.1	250	--	33	42	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
13...	29	377	15.6	8	1.4	0.380	<1	100	90	<1	<1
DEC 23...	--	--	--	4	3.0	0.530	--	--	--	--	--
FEB 1994				18	4.5	0.430	--	--	--	--	--
MAY 04...	31	404	5.93	5	4.1	0.640	1	<100	2900	1	<1
JUN 24...	--	--	--	<1	4.8	0.470	--	--	--	--	--
AUG 23...	34	390	2.24	7	1.0	0.460	--	--	--	--	--

K = non-ideal count

RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR--Continued

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO DESCALABRADO BASIN

337

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Díaz.

DRAINAGE AREA.--12.9 mi² (33.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records poor. Some regulation at low flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	e2.2	2.3	.79	.66	18	.60	.38	.00	.06	.04	1.1
2	2.4	e2.3	1.9	.71	.53	4.3	.60	.39	.00	.03	.03	3.2
3	2.4	e2.2	1.6	.67	.58	.88	e.68	.43	.01	.02	.02	.06
4	16	2.4	1.6	.78	.63	.78	e.52	.41	.02	.04	.01	.06
5	7.0	5.0	2.5	.85	.57	.80	e.54	.41	.00	.04	.00	.06
6	3.9	3.1	1.8	.85	.51	.77	e67	.41	.00	.06	.04	3.2
7	3.3	2.4	1.3	.58	.52	.77	23	.35	.00	.04	.16	.06
8	2.9	2.2	1.2	.57	e.63	.76	3.7	.26	.00	.03	.04	.05
9	3.0	2.2	1.1	.64	e.39	.59	.68	.30	.02	.01	.01	.05
10	2.9	1.9	1.2	.74	.44	.82	1.9	.32	.04	.01	.02	.05
11	2.5	2.8	1.6	.60	.40	.65	3.4	.37	.05	.01	.00	15
12	2.6	2.4	1.6	.64	.48	.83	.78	.30	.06	.00	.00	6.6
13	2.7	1.6	3.0	.71	.51	1.0	.36	.23	.06	.00	.00	.06
14	2.2	1.5	7.7	.65	.72	.77	.47	.19	.07	.00	33	.05
15	2.2	2.1	4.2	.63	.77	.76	.46	.19	.08	.00	9.9	.06
16	4.9	2.4	1.5	.60	.68	.77	.56	.19	.08	.00	1.1	.06
17	e9.0	2.9	1.4	.55	.59	.66	.80	.59	.18	.00	.51	.06
18	e4.5	4.0	1.3	.54	.60	.61	.79	.15	.15	.63	2.4	.06
19	e3.2	3.6	25	.54	.65	.61	.64	.12	.12	.07	.50	.09
20	e2.9	5.5	1.9	.54	.83	.59	.56	.12	.10	.02	.38	.49
21	e2.8	3.4	1.4	.53	1.0	.65	.51	.05	.09	.01	.27	.26
22	e2.9	1.6	1.3	.53	.92	.78	.49	.03	.08	.00	.19	.14
23	e2.8	1.4	1.4	.56	.84	.61	.49	.02	.07	.00	.13	.21
24	e2.9	1.7	1.2	.70	.90	.57	.47	.00	.06	.00	10	6.5
25	e2.6	1.4	1.1	.65	.88	.63	.51	.00	.04	.31	1.0	.20
26	e2.4	1.5	1.0	.57	.90	.59	.77	.00	.16	.13	.14	.14
27	e5.5	1.5	.96	.56	.94	.62	1.4	.00	.08	.02	.12	.14
28	e6.0	2.1	.87	.51	37	.61	.70	.00	.13	.04	.09	.13
29	e4.2	2.8	.83	.49	---	.72	.51	.00	.09	.03	.08	.12
30	e2.8	2.5	.88	.42	---	.72	.40	.00	.08	.03	.08	.13
31	e2.5	---	.79	.47	---	.60	---	.00	---	.04	.07	---
TOTAL	123.5	74.6	77.43	19.17	55.07	42.82	114.29	6.21	1.92	1.68	60.33	38.39
MEAN	3.98	2.49	2.50	.62	1.97	1.38	3.81	.20	.064	.054	1.95	1.28
MAX	16	5.5	25	.85	.37	18	67	.59	.18	.63	33	15
MIN	2.2	1.4	.79	.42	.39	.57	.36	.00	.00	.00	.00	.05
AC-FT	245	148	154	38	109	85	227	12	3.8	3.3	120	76
CFSM	.31	.19	.19	.05	.15	.11	.30	.02	.00	.00	.15	.10
IN.	.36	.22	.22	.06	.16	.12	.33	.02	.01	.00	.17	.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1994, BY WATER YEAR (WY)

	MEAN	29.6	16.3	5.60	5.29	2.11	1.15	3.87	14.5	5.00	2.35	3.35	12.3
MAX	117	41.0	24.5	36.4	7.57	3.49	18.8	62.2	25.2	10.5	9.11	40.2	
(WY)	1986	1985	1988	1992	1986	1986	1985	1985	1987	1991	1988	1985	
MIN	2.02	2.17	.19	.057	.020	.012	.000	.032	.000	.000	.19	.063	
(WY)	1968	1992	1968	1968	1968	1968	1968	1968	1967	1967	1990	1967	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1966 - 1994

ANNUAL TOTAL	1716.62	615.41	
ANNUAL MEAN	4.70	1.69	8.91
HIGHEST ANNUAL MEAN			18.4
LOWEST ANNUAL MEAN			1.69
HIGHEST DAILY MEAN	88	Sep 20	2600
LOWEST DAILY MEAN	.79	Dec 31	.00
ANNUAL SEVEN-DAY MINIMUM	.92	Dec 25	.00
INSTANTANEOUS PEAK FLOW			686
INSTANTANEOUS PEAK STAGE			6.28
ANNUAL RUNOFF (AC-FT)	3400	1220	6450
ANNUAL RUNOFF (CFSM)	.36	.13	.69
ANNUAL RUNOFF (INCHES)	4.95	1.77	9.38
10 PERCENT EXCEEDS	9.1	3.0	13
50 PERCENT EXCEEDS	2.8	.59	1.4
90 PERCENT EXCEEDS	1.1	.02	.03

e Estimated

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic Unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from road 553, 2.4 mi (3.9 km) southeast from Villalba plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

DRAINAGE AREA.--7.64 mi² (19.79 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water stage recorder. Elevation of gage is 525 ft (160 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.5	9.5	4.5	3.1	2.9	13	3.0	2.0	2.1	1.2	1.4	e2.6
2	3.3	8.3	4.3	3.3	3.1	7.2	3.2	2.1	2.3	.94	1.4	e2.2
3	2.7	8.1	4.2	2.9	3.0	3.1	3.3	2.2	2.1	.97	1.3	e2.5
4	15	7.6	4.1	2.9	3.0	2.8	3.7	2.2	2.1	.96	1.3	e2.5
5	3.6	7.0	4.3	2.9	3.1	2.6	4.1	2.5	2.1	.96	1.3	e2.4
6	2.1	7.0	4.2	3.0	3.1	2.8	30	2.4	2.0	1.0	1.3	e2.6
7	1.8	6.5	4.4	2.9	3.0	2.4	10	2.5	2.1	1.1	1.6	e2.5
8	1.8	6.4	4.4	2.8	3.2	2.3	3.7	2.7	2.0	1.0	1.5	2.2
9	1.7	6.2	4.2	2.7	3.1	2.3	3.2	2.6	1.8	1.0	1.5	2.1
10	1.7	5.9	4.2	2.9	3.1	2.5	2.9	2.7	1.9	1.1	1.2	2.1
11	1.5	5.8	4.9	2.7	3.3	2.2	2.7	6.0	1.8	1.1	1.2	2.8
12	1.4	5.7	4.5	3.1	3.4	2.1	2.8	3.4	1.8	1.1	1.0	2.7
13	1.4	5.4	22	3.1	3.5	2.6	2.6	2.4	1.8	1.0	1.0	2.2
14	1.4	5.7	14	2.9	3.5	2.4	2.6	2.2	1.6	1.0	1.0	2.4
15	1.4	5.7	6.7	3.0	3.9	2.3	2.6	2.2	1.9	1.1	1.1	2.8
16	6.7	7.2	4.5	3.0	3.4	2.8	2.6	2.3	1.7	1.1	1.1	2.9
17	82	6.3	4.2	2.8	3.6	2.5	2.5	2.4	1.4	1.2	1.1	3.0
18	15	5.5	3.8	3.0	3.5	2.5	2.6	2.6	1.5	1.7	1.4	3.2
19	4.5	6.4	3.7	3.0	3.4	2.8	2.5	2.6	1.4	1.6	25	3.4
20	3.0	5.1	3.7	3.1	3.4	2.5	2.8	2.5	1.3	1.2	e3.7	5.7
21	2.6	5.2	3.6	3.0	3.4	2.5	3.0	2.6	1.2	1.1	e2.0	4.5
22	2.3	4.3	3.4	3.4	3.3	2.6	3.0	2.6	1.2	1.1	e2.0	3.5
23	2.7	4.3	3.5	3.4	3.4	2.5	3.0	2.6	1.2	1.1	e2.0	3.3
24	11	4.6	3.3	3.2	3.4	2.6	3.0	2.5	1.1	1.1	e2.3	5.8
25	4.1	4.3	3.5	3.5	3.2	2.6	3.2	2.5	1.0	1.2	2.7	4.3
26	2.4	4.3	3.7	3.1	3.4	2.6	7.2	2.6	1.1	1.2	2.6	4.5
27	48	4.5	3.4	2.9	3.6	2.8	4.8	2.5	1.0	1.2	2.3	4.1
28	62	6.0	3.4	2.9	14	2.7	2.9	2.5	.98	1.2	17	4.0
29	41	4.4	3.4	2.9	---	2.9	2.3	2.5	.92	1.2	3.1	3.8
30	20	4.3	3.3	2.9	---	2.9	2.0	2.4	.84	1.3	2.2	3.7
31	13	---	3.3	2.9	---	3.1	---	2.3	---	1.3	2.1	---
TOTAL	366.6	177.5	152.6	93.2	103.2	95.5	127.8	80.1	47.24	35.33	91.7	96.3
MEAN	11.8	5.92	4.92	3.01	3.69	3.08	4.26	2.58	1.57	1.14	2.96	3.21
MAX	82	9.5	22	3.5	14	13	30	6.0	2.3	1.7	25	5.8
MIN	1.4	4.3	3.3	2.7	2.9	2.1	2.0	2.0	.84	.94	1.0	2.1
AC-FT	727	352	303	185	205	189	253	159	94	70	182	191
CFSM	.83	.42	.35	.21	.26	.22	.30	.18	.11	.08	.21	.23
IN.	.96	.46	.40	.24	.27	.25	.33	.21	.12	.09	.24	.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1989	44.4	109	1991	4.61	1992
1990	17.1	40.1	1991	2.19	1992
1991	7.03	12.4	1993	1.42	1992
1992	12.6	43.1	1992	3.01	1994
1993	3.79	4.75	1991	2.37	1990
1994	3.35	4.71	1991	1.67	1990
1995	9.21	26.3	1993	1.46	1990
1996	14.2	42.2	1992	1.42	1990
1997	10.5	35.4	1992	1.23	1990
1998	7.11	14.4	1992	.71	1990
1999	6.99	11.9	1989	2.74	1990
2000	21.2	46.2	1989	3.21	1994

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1989 - 1994
ANNUAL TOTAL	4634.6	1467.07	
ANNUAL MEAN	12.7	4.02	13.1
HIGHEST ANNUAL MEAN			18.2
LOWEST ANNUAL MEAN			4.02
HIGHEST DAILY MEAN	197	82	676
LOWEST DAILY MEAN	1.4	.84	.45
ANNUAL SEVEN-DAY MINIMUM	1.5	.97	.61
INSTANTANEOUS PEAK FLOW		981	8700
INSTANTANEOUS PEAK STAGE		6.46	13.24
INSTANTANEOUS LOW FLOW		.72	.44
ANNUAL RUNOFF (AC-FT)	9190	2910	9460
ANNUAL RUNOFF (CFSM)	.89	.28	.92
ANNUAL RUNOFF (INCHES)	12.14	3.84	12.49
10 PERCENT EXCEEDS	29	5.8	30
50 PERCENT EXCEEDS	6.8	2.8	3.8
90 PERCENT EXCEEDS	3.3	1.2	1.2

e Estimated

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1988 to 1994.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1994.

INSTRUMENTATION.-- Automatic sediment sampler.

REMARKS.-- Sediment samples were collected by a local observer on a weekly basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,170 mg/L January 05, 1992; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 18,300 tons (16,600 tonnes) January 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR CURRENT YEAR 1994.--

SEDIMENT CONCENTRATION: Maximum daily mean, 559 mg/L Oct. 17, 1993; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 503 tons (456 tonnes) Oct. 17, 1993; Minimum daily mean, 0.0 ton (0.0 tonne) few days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	5.5	17	.28	9.5	36	.88	4.5	67	.72
2	3.3	17	.13	8.3	31	.68	4.3	74	.80
3	2.7	28	.18	8.1	29	.60	4.2	73	.79
4	15	96	12	7.6	37	.68	4.1	60	.65
5	3.6	47	.57	7.0	62	1.2	4.3	33	.35
6	2.1	32	.18	7.0	83	1.5	4.2	13	.13
7	1.8	26	.12	6.5	98	1.6	4.4	36	.38
8	1.8	26	.11	6.4	72	1.2	4.4	77	.83
9	1.7	36	.16	6.2	26	.40	4.2	97	1.0
10	1.7	65	.34	5.9	55	.79	4.2	105	1.2
11	1.5	76	.29	5.8	114	1.6	4.9	82	.96
12	1.4	79	.29	5.7	138	2.0	4.5	46	.57
13	1.4	80	.28	5.4	138	1.9	22	149	39
14	1.4	80	.27	5.7	132	1.8	14	68	6.6
15	1.4	80	.26	5.7	90	1.3	6.7	30	.72
16	6.7	98	3.7	7.2	33	.48	4.5	29	.34
17	82	559	503	6.3	44	.62	4.2	50	.55
18	15	81	4.3	5.5	104	1.5	3.8	64	.66
19	4.5	35	.45	6.4	138	2.7	3.7	72	.68
20	3.0	30	.24	5.1	140	1.9	3.7	73	.66
21	2.6	35	.21	5.2	94	1.2	3.6	53	.48
22	2.3	43	.25	4.3	19	.23	3.4	24	.22
23	2.7	48	.32	4.3	5	.06	3.5	24	.21
24	11	80	5.2	4.6	15	.18	3.3	38	.33
25	4.1	45	.53	4.3	55	.64	3.5	29	.25
26	2.4	40	.26	4.3	93	1.1	3.7	14	.12
27	48	475	252	4.5	65	.75	3.4	8	.08
28	62	389	218	6.0	27	.54	3.4	10	.10
29	41	163	25	4.4	30	.35	3.4	14	.13
30	20	44	2.4	4.3	53	.57	3.3	14	.12
31	13	39	1.3	---	---	---	3.3	16	.13
TOTAL	366.6	---	1032.62	177.5	---	30.95	152.6	---	59.76

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	3.1	25	.20	2.9	35	.25	13	56	3.8
2	3.3	48	.38	3.1	16	.11	7.2	20	.63
3	2.9	99	.74	3.0	27	.20	3.1	5	.04
4	2.9	135	.98	3.0	46	.36	2.8	5	.04
5	2.9	139	1.0	3.1	35	.28	2.6	6	.05
6	3.0	109	.79	3.1	15	.12	2.8	8	.06
7	2.9	64	.45	3.0	7	.06	2.4	10	.07
8	2.8	49	.33	3.2	8	.06	2.3	15	.09
9	2.7	47	.33	3.1	10	.08	2.3	20	.13
10	2.9	44	.31	3.1	10	.08	2.5	24	.15
11	2.7	36	.26	3.3	8	.07	2.2	28	.15
12	3.1	26	.21	3.4	9	.07	2.1	28	.16
13	3.1	16	.13	3.5	10	.09	2.6	23	.14
14	2.9	7	.05	3.5	7	.08	2.4	20	.12
15	3.0	10	.07	3.9	4	.05	2.3	23	.14
16	3.0	43	.32	3.4	3	.03	2.8	27	.17
17	2.8	90	.66	3.6	3	.02	2.5	25	.16
18	3.0	74	.55	3.5	3	.02	2.5	20	.13
19	3.0	28	.23	3.4	3	.02	2.8	15	.10
20	3.1	14	.12	3.4	3	.02	2.5	11	.07
21	3.0	7	.06	3.4	3	.02	2.5	7	.05
22	3.4	6	.05	3.3	4	.03	2.6	5	.04
23	3.4	8	.06	3.4	6	.06	2.5	4	.03
24	3.2	8	.06	3.4	10	.09	2.6	3	.02
25	3.5	29	.23	3.2	14	.11	2.6	3	.02
26	3.1	66	.52	3.4	14	.12	2.6	3	.02
27	2.9	59	.45	3.6	11	.11	2.8	4	.02
28	2.9	23	.17	14	62	7.4	2.7	4	.03
29	2.9	10	.08	---	---	---	2.9	4	.03
30	2.9	13	.09	---	---	---	2.9	3	.02
31	2.9	32	.23	---	---	---	3.1	3	.02
TOTAL	93.2	---	10.11	103.2	---	10.01	95.5	---	6.70

RIO JACAGUAS BASIN

341

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL				MAY			JUNE		
1	3.0	2	.02	2.0	1	<.01	2.1	1	<.01
2	3.2	2	.02	2.1	1	<.01	2.3	2	.01
3	3.3	2	.02	2.2	3	.02	2.1	3	.02
4	3.7	4	.04	2.2	4	.02	2.1	2	.02
5	4.1	184	66	2.5	3	.02	2.1	2	.02
6	30	188	69	2.4	2	.02	2.0	2	.02
7	10	45	2.0	2.5	2	.02	2.1	3	.02
8	3.7	15	.14	2.7	4	.02	2.0	6	.03
9	3.2	15	.10	2.6	4	.02	1.8	9	.04
10	2.9	15	.10	2.7	4	.02	1.9	11	.05
11	2.7	14	.10	6.0	20	.81	1.8	11	.06
12	2.8	11	.08	3.4	12	.13	1.8	10	.05
13	2.6	10	.06	2.4	5	.03	1.8	8	.04
14	2.6	8	.05	2.2	3	.02	1.6	6	.03
15	2.6	6	.04	2.2	3	.02	1.9	3	.01
16	2.6	5	.04	2.3	3	.02	1.7	2	<.01
17	2.5	5	.04	2.4	3	.02	1.4	3	.01
18	2.6	5	.04	2.6	6	.04	1.5	5	.02
19	2.5	4	.03	2.6	10	.06	1.4	5	.02
20	2.8	3	.02	2.5	17	.11	1.3	5	.02
21	3.0	3	.02	2.6	11	.07	1.2	3	.01
22	3.0	4	.03	2.6	7	.05	1.2	2	<.01
23	3.0	5	.04	2.6	7	.05	1.2	2	<.01
24	3.0	5	.04	2.5	5	.04	1.1	1	<.01
25	3.2	3	.03	2.5	5	.04	1.0	2	<.01
26	7.2	25	1.0	2.6	7	.05	1.1	2	<.01
27	4.8	15	.27	2.5	10	.06	1.0	2	<.01
28	2.9	3	.03	2.5	9	.05	.98	2	<.01
29	2.3	2	.02	2.5	5	.03	.92	2	<.01
30	2.0	1	.01	2.4	2	.02	.84	2	<.01
31	---	---	---	2.3	1	.01	---	---	---
TOTAL	127.8	---	139.43	80.1	---	1.89	47.24	---	0.50

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	1.2	2	.00	1.4	7	.02	2.6	2	.02
2	.94	4	.01	1.4	8	.02	2.2	2	.02
3	.97	7	.02	1.3	9	.03	2.5	2	.02
4	.96	9	.02	1.3	12	.04	2.5	2	.02
5	.96	10	.02	1.3	14	.04	2.4	2	.02
6	1.0	10	.02	1.3	13	.04	2.6	2	.02
7	1.1	10	.02	1.6	11	.04	2.5	3	.02
8	1.0	7	.02	1.5	8	.03	2.2	3	.02
9	1.0	4	.01	1.5	7	.03	2.1	4	.02
10	1.1	3	.00	1.2	9	.03	2.1	6	.03
11	1.1	3	.01	1.2	10	.03	2.8	7	.05
12	1.1	3	.02	1.0	11	.03	2.7	7	.05
13	1.0	4	.02	1.0	11	.03	2.2	9	.05
14	1.0	4	.02	1.0	11	.02	2.4	10	.06
15	1.1	4	.02	1.1	11	.03	2.8	7	.05
16	1.1	3	.01	1.1	12	.04	2.9	3	.03
17	1.2	3	.01	1.1	12	.03	3.0	2	.02
18	1.7	2	.01	1.4	11	.03	3.2	2	.02
19	1.6	2	.01	25	198	98	3.4	2	.02
20	1.2	3	.00	23.7	21	2.26	5.7	3	.05
21	1.1	2	.00	2.0	10	.05	4.5	5	.07
22	1.1	2	.00	2.0	9	.04	3.5	4	.04
23	1.1	2	.00	2.0	10	.05	3.3	4	.03
24	1.1	2	.00	2.3	10	.07	5.8	17	.31
25	1.2	4	.01	2.7	8	.06	4.3	22	.28
26	1.2	6	.02	2.6	4	.03	4.5	33	.38
27	1.2	9	.03	2.3	3	.02	4.1	45	.50
28	1.2	9	.03	17	99	25	4.0	55	.59
29	1.2	6	.02	3.1	7	.07	3.8	65	.67
30	1.3	4	.02	2.2	2	.01	3.7	74	.74
31	1.3	5	.02	2.1	2	.01	---	---	---
TOTAL	35.33	---	0.42	91.7	---	124.23	96.3	---	4.22
YEAR	1467.07		1420.84						

• Estimated

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1993							
27...	1510	240	8570	5550	23	23	31
27...	1540	146	3300	1300	39	45	54
AUG 1994							
05...	1420	330	3880	3460	36	45	56

DATE	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1993							
27...	39	49	58	74	91	98	99.7
27...	66	77	90	97	99	99.8	100
AUG 1994							
05...	68	76	82	88	92	96	99

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
17...	1700	157	1720	729	70
27...	1435	576	477	742	30
27...	1600	166	2400	1080	91
AUG 1994					
19...	1415	365	4270	4200	55
SEP					
26...	1542	4.6	969	12	99
30...	1525	3.7	78	0.78	97

RIO JACAGUAS BASIN

345

50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Diaz plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi² (129.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	17	11	e6.0	e2.5	e3.5	e1.7	e1.1	e1.2	e.78	1.1	1.1
2	30	17	11	e5.8	e2.4	e3.1	e1.7	e1.2	e1.3	e.58	1.2	1.6
3	28	19	10	e5.6	e2.3	e2.6	e1.7	e1.3	e1.2	e.62	1.2	1.4
4	46	19	11	e5.6	e2.3	e2.3	e1.7	e1.4	e1.2	e.60	1.2	1.1
5	48	19	11	e5.4	e2.2	e2.3	e1.7	e1.4	e1.4	e.60	1.2	.86
6	34	19	10	e5.3	e2.1	e2.2	e1.9	e1.3	e1.1	e.62	1.2	.92
7	35	20	9.6	e5.1	e2.0	e2.0	e2.9	e1.4	e1.2	e.70	1.2	.98
8	17	19	9.4	e4.9	e2.0	e1.9	e3.1	e1.5	e1.1	e.64	1.2	.84
9	13	15	9.1	e4.8	e1.9	e1.9	e1.9	e1.4	e1.0	e.64	1.1	.68
10	11	14	8.9	e4.6	e1.9	e2.2	e1.7	e1.5	e1.1	e.70	1.2	.65
11	11	14	8.9	e4.3	e1.9	e2.1	e1.6	e3.6	e1.0	e.70	1.1	.75
12	10	13	8.9	e4.3	e1.9	e2.2	e1.7	e2.0	e1.0	e.64	.87	.88
13	11	13	9.0	e4.3	e1.9	e2.3	e1.5	e1.3	e1.0	e.64	.75	.86
14	11	13	27	e4.1	e1.9	e2.2	e1.5	e1.2	e.80	e.64	7.7	.76
15	12	12	9.3	e4.0	e1.9	e2.1	e1.5	e1.2	e1.1	e.67	4.4	.65
16	15	12	8.2	e3.9	e1.9	e2.1	e1.5	e1.3	e.98	2.4	2.3	.63
17	315	13	8.1	e3.7	e1.9	e2.0	e1.4	e1.3	e.94	1.6	1.8	.63
18	78	12	8.3	e3.7	e1.9	e1.8	e1.5	e1.5	e.96	1.6	1.7	.59
19	33	12	11	e3.6	e1.9	e1.7	e1.4	e1.5	e.90	1.5	1.7	.64
20	28	12	e8.5	e3.5	e1.9	e1.5	e1.6	e1.4	e.82	1.3	1.6	1.4
21	27	12	e7.5	e3.4	e1.9	e1.4	e1.7	e1.5	e.76	1.2	1.5	1.1
22	29	11	e7.3	e3.3	e1.9	e1.4	e1.7	e1.5	e.76	1.2	1.4	.92
23	30	11	e7.3	e3.3	e1.9	e1.4	e1.7	e1.5	e.76	1.2	1.2	1.6
24	31	11	e7.2	e3.3	e1.8	e1.5	e1.7	e1.4	e.68	1.2	1.0	2.0
25	28	12	e7.0	e3.2	e1.8	e1.5	e1.9	e1.4	e.62	2.0	1.7	1.6
26	21	12	e6.8	e3.1	e1.8	e1.5	e4.3	e1.5	e.68	1.8	1.2	1.5
27	21	11	e6.7	e3.0	e1.8	e1.5	e2.9	e1.4	e.62	1.4	1.0	1.2
28	21	11	e6.4	e2.9	e1.8	e1.5	e1.6	e1.4	e.62	1.2	1.1	1.3
29	19	11	e6.2	e2.9	---	e1.6	e1.3	e1.4	e.58	.95	1.2	1.5
30	18	11	e6.0	e2.7	---	e1.6	e1.1	e1.3	e.52	.94	1.2	1.4
31	17	---	e6.0	e2.5	---	e1.6	---	e1.3	---	.92	1.1	---
TOTAL	1090	417	282.6	126.1	55.3	60.5	55.1	45.4	27.90	32.18	49.32	32.04
MEAN	35.2	13.9	9.12	4.07	1.97	1.95	1.84	1.46	.93	1.04	1.59	1.07
MAX	315	20	27	6.0	2.5	3.5	4.3	3.6	1.4	2.4	7.7	2.0
MIN	10	11	6.0	2.5	1.8	1.4	1.1	1.1	.52	.58	.75	.59
AC-FT	2160	827	561	250	110	120	109	90	55	64	98	64
CFSM	.71	.28	.18	.08	.04	.04	.04	.03	.02	.02	.03	.02
IN.	.81	.31	.21	.09	.04	.05	.04	.03	.02	.02	.04	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

	MEAN	141	104	41.0	28.4	8.53	4.76	10.2	75.9	44.2	24.0	19.1	35.6
MAX	445	287	151	144	16.9	7.94	34.7	215	198	82.4	41.1	164	
(WY)	1986	1988	1988	1992	1991	1988	1992	1985	1987	1987	1985	1985	
MIN	8.65	10.5	9.12	4.07	1.97	1.95	1.84	1.46	.93	1.04	1.59	1.07	
(WY)	1987	1987	1994	1994	1994	1994	1994	1994	1994	1994	1994	1994	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1984 - 1994

ANNUAL TOTAL	11988.8	2273.44	
ANNUAL MEAN	32.8	6.23	46.1
HIGHEST ANNUAL MEAN			80.9
LOWEST ANNUAL MEAN			6.23
HIGHEST DAILY MEAN	589	May 27	4530
LOWEST DAILY MEAN	2.2	Mar 28	.24
ANNUAL SEVEN-DAY MINIMUM	2.3	Mar 28	.61
INSTANTANEOUS PEAK FLOW			5890
INSTANTANEOUS PEAK STAGE			14.32
ANNUAL RUNOFF (AC-FT)	23780	4510	33410
ANNUAL RUNOFF (CFSM)	.66	.13	.93
ANNUAL RUNOFF (INCHES)	8.96	1.70	12.58
10 PERCENT EXCEEDS	72	13	103
50 PERCENT EXCEEDS	15	1.8	8.1
90 PERCENT EXCEEDS	4.7	.81	2.5

e Estimated

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

RIO INABON BASIN

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 mi² (25.12 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 nonrecording gage and crest-stage gage at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	12	5.6	5.8	7.0	e15	16	2.7	6.2	2.1	3.0	7.5
2	11	13	5.5	5.7	6.9	e8.0	9.6	2.8	e60	2.1	3.0	8.9
3	13	17	5.8	5.2	6.1	e5.2	5.7	2.7	e24	2.6	1.9	9.4
4	26	13	5.9	5.2	6.2	e4.8	4.9	2.5	e9.0	2.5	1.6	6.9
5	17	11	6.5	5.2	6.1	e4.5	5.3	2.6	e5.8	2.4	2.5	5.4
6	8.3	9.5	5.7	5.2	6.3	e4.3	6.3	10	e4.2	2.3	2.7	4.7
7	31	11	5.4	4.9	e5.4	e4.2	9.7	5.5	e3.9	2.6	4.0	4.6
8	18	10	5.6	4.9	e5.4	e4.1	9.4	3.3	e4.2	2.4	18	4.2
9	7.7	11	5.7	4.9	e5.3	e3.9	6.1	2.9	5.5	2.3	15	4.0
10	8.2	10	5.8	5.3	e5.2	e3.7	6.5	9.6	5.5	2.0	6.7	3.6
11	e8.0	9.9	6.5	5.6	e5.1	3.8	8.6	11	4.9	1.9	3.8	5.1
12	e7.0	10	6.8	5.6	e5.2	3.2	6.9	7.9	4.3	2.1	2.8	5.3
13	e7.2	9.5	15	5.5	e5.2	5.1	6.0	4.0	4.1	2.0	2.2	3.9
14	e10	10	31	6.2	e5.4	3.8	5.8	10	2.8	1.8	11	3.6
15	e20	10	18	5.8	e5.3	4.0	5.1	13	6.0	2.6	5.2	3.7
16	e33	14	9.7	5.8	e5.2	4.8	4.4	7.1	5.4	2.3	2.7	3.6
17	e28	8.3	7.7	5.2	e5.2	3.4	4.3	10	3.3	2.1	2.1	4.7
18	e20	8.6	6.7	5.8	e5.0	3.0	4.3	7.0	2.7	3.3	2.0	12
19	e15	10	9.2	6.2	e5.0	3.1	4.4	4.9	2.4	4.0	5.5	12
20	e10	8.5	30	5.5	e5.2	3.2	4.2	4.2	2.1	2.7	6.7	19
21	e9.0	9.9	19	6.6	e5.0	3.2	3.5	e4.0	1.9	2.5	4.8	20
22	e9.8	7.6	12	e12	e5.0	3.1	3.2	e4.0	1.8	2.1	3.4	15
23	e12	7.4	8.1	e30	e5.2	2.9	3.1	e4.2	1.8	1.8	4.2	24
24	e13	7.3	6.9	e20	e5.0	2.6	2.7	e4.2	1.6	1.2	4.9	45
25	e11	7.1	5.8	e10	e4.5	2.5	2.5	e4.3	1.6	3.2	11	25
26	e13	6.7	5.8	e6.1	4.5	2.5	4.1	4.5	2.2	3.3	5.3	14
27	13	6.9	5.7	5.5	5.1	2.9	3.5	4.6	2.4	1.9	3.9	10
28	16	19	5.6	5.3	e40	e2.3	4.6	5.1	2.7	1.9	43	8.5
29	13	8.1	5.6	5.7	---	3.0	2.8	6.0	2.3	1.3	20	8.7
30	11	6.5	5.6	6.3	---	3.4	2.6	5.5	2.0	1.9	10	17
31	11	---	5.8	6.8	---	3.8	---	6.5	---	2.3	8.0	---
TOTAL	450.2	302.8	284.0	223.8	186.0	127.3	166.1	176.6	186.6	71.5	220.9	319.3
MEAN	14.5	10.1	9.16	7.22	6.64	4.11	5.54	5.70	6.22	2.31	7.13	10.6
MAX	33	19	31	30	40	15	16	13	60	4.0	43	45
MIN	7.0	6.5	5.4	4.9	4.5	2.3	2.5	2.5	1.6	1.2	1.6	3.6
AC-FT	893	601	563	444	369	252	329	350	370	142	438	633
CFSM	1.50	1.04	.94	.74	.68	.42	.57	.59	.64	.24	.73	1.10
IN.	1.73	1.16	1.09	.86	.71	.49	.64	.68	.72	.27	.85	1.22

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1994, BY WATER YEAR (WY)

	MEAN	47.4	34.6	12.7	8.70	5.40	5.64	8.08	20.0	16.2	12.0	17.1	32.2
MAX	148	77.9	26.5	45.5	9.25	16.4	19.2	76.7	49.8	32.7	46.1	119	
(WY)	1986	1978	1966	1992	1992	1972	1992	1969	1969	1979	1979	1975	
MIN	14.5	8.32	4.43	4.11	3.05	1.85	2.76	1.94	2.75	1.77	4.47	7.70	
(WY)	1994	1977	1977	1989	1977	1977	1975	1967	1967	1990	1974	1986	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1964 - 1994

ANNUAL TOTAL	5176.2	2715.1	
ANNUAL MEAN	14.2	7.44	18.2
HIGHEST ANNUAL MEAN			30.9
LOWEST ANNUAL MEAN			7.44
HIGHEST DAILY MEAN	222	60	2500
LOWEST DAILY MEAN	2.5	1.2	.80
ANNUAL SEVEN-DAY MINIMUM	3.6	1.9	1.1
INSTANTANEOUS PEAK FLOW		794	19000
INSTANTANEOUS PEAK STAGE		9.13	25.30
ANNUAL RUNOFF (AC-FT)	10270	5390	13190
ANNUAL RUNOFF (CFSM)	1.46	.77	1.88
ANNUAL RUNOFF (INCHES)	19.85	10.41	25.50
10 PERCENT EXCEEDS	25	14	40
50 PERCENT EXCEEDS	9.5	5.4	9.0
90 PERCENT EXCEEDS	5.4	2.4	3.1

e Estimated

RIO BUCANA BASIN

349

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Rio San Patricio, 0.1 mi (0.2 km) southwest of Hwy 139 and 2.4 mi (3.7 km) northwest of Maragüez.

DRAINAGE AREA.-- 15.4 mi² (39.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	13	7.8	7.3	5.3	14	5.6	4.9	3.9	3.8	3.3	5.7
2	44	14	7.8	7.3	5.2	9.9	6.3	4.8	53	3.4	3.4	5.4
3	38	13	7.8	7.3	5.2	6.5	5.9	4.4	16	3.4	3.4	5.1
4	60	12	7.8	7.1	5.2	5.9	6.1	4.2	8.4	3.4	3.6	4.3
5	47	12	8.0	6.9	5.1	5.5	5.6	3.9	6.2	3.4	4.0	4.0
6	31	12	8.2	6.9	4.9	5.3	5.5	4.9	5.6	3.0	4.9	3.8
7	93	11	7.8	6.9	4.9	5.2	11	4.9	5.2	3.1	3.7	3.8
8	59	11	7.8	6.9	4.9	5.0	7.8	4.2	5.2	3.4	16	3.6
9	32	10	7.8	6.6	4.8	4.9	5.9	4.1	4.9	3.5	7.2	3.4
10	25	10	7.8	6.6	4.6	5.1	7.1	37	4.9	3.4	4.1	3.2
11	22	9.6	7.8	6.7	4.6	5.0	7.1	14	4.7	3.4	3.6	4.7
12	22	9.6	7.8	6.9	4.4	6.0	7.1	8.8	4.6	3.4	3.4	7.5
13	20	9.6	9.2	6.7	4.4	7.1	5.8	5.9	4.6	3.0	3.4	5.5
14	18	9.6	14	6.6	4.6	5.5	5.5	19	4.4	3.1	3.9	3.7
15	17	9.3	11	6.6	4.9	5.6	5.5	9.4	8.7	3.6	4.0	3.4
16	42	9.9	8.7	6.6	4.6	6.6	5.5	6.0	6.8	3.7	3.4	3.2
17	31	9.5	8.6	6.6	4.6	5.5	5.2	11	5.4	3.7	3.4	16
18	28	8.9	8.2	6.6	4.6	5.2	5.6	6.8	4.9	3.7	3.8	8.3
19	22	8.6	8.2	6.6	e4.6	5.2	5.5	7.4	4.6	3.9	41	5.0
20	19	8.8	8.4	6.2	e4.6	5.2	5.6	5.5	4.4	3.3	9.3	52
21	17	9.0	8.2	7.6	e4.6	5.2	5.9	5.2	3.9	3.3	4.7	52
22	16	8.2	8.6	7.3	e4.6	5.2	6.1	4.7	3.9	3.2	4.1	27
23	17	8.2	8.6	37	e4.6	5.3	5.5	4.4	3.9	3.1	3.7	49
24	17	8.1	8.2	11	4.9	5.5	5.5	4.3	3.8	3.0	4.2	102
25	16	7.8	8.2	7.9	4.6	5.5	5.5	4.1	3.6	4.2	7.1	37
26	15	7.8	8.1	6.6	4.6	5.5	5.2	4.1	3.6	3.5	4.3	18
27	15	8.2	7.8	6.2	4.6	5.5	15	4.1	3.6	3.0	3.9	13
28	22	8.3	7.8	6.0	51	5.5	9.5	4.1	3.5	3.0	134	11
29	16	8.3	7.8	5.9	---	5.5	6.1	4.3	3.4	3.2	32	9.7
30	14	7.8	7.8	5.6	---	5.5	5.4	4.1	3.5	3.2	11	36
31	14	---	7.4	5.5	---	5.2	---	3.9	---	3.2	7.0	---
TOTAL	894	293.1	259.0	242.5	179.5	183.6	194.9	218.4	203.1	104.5	348.8	506.3
MEAN	28.8	9.77	8.35	7.82	6.41	5.92	6.50	7.05	6.77	3.37	11.3	16.9
MAX	93	14	14	37	51	14	15	37	53	4.2	134	102
MIN	14	7.8	7.4	5.5	4.4	4.9	5.2	3.9	3.4	3.0	3.3	3.2
AC-FT	1770	581	514	481	356	364	387	433	403	207	692	1000
CFSM	2.42	.82	.70	.66	.54	.50	.55	.59	.57	.28	.95	1.42
IN.	2.79	.92	.81	.76	.56	.57	.61	.68	.63	.33	1.09	1.58

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1994, BY WATER YEAR (WY)

	MEAN	82.3	34.7	16.7	19.3	9.11	11.1	15.0	26.5	21.6	13.9	25.2	46.4
MAX	154	59.3	26.2	59.0	13.2	27.5	24.3	68.2	36.5	26.7	53.1	88.0	
(WY)	1991	1993	1993	1992	1992	1989	1989	1993	1989	1991	1991	1989	
MIN	24.6	9.77	8.35	7.46	6.34	4.77	6.38	4.58	6.37	3.37	11.3	16.9	
(WY)	1992	1994	1994	1989	1990	1990	1990	1990	1990	1994	1994	1994	

SUMMARY STATISTICS

	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1989 - 1994
ANNUAL TOTAL	8383.1	3627.7	
ANNUAL MEAN	23.0	9.94	26.0
HIGHEST ANNUAL MEAN			35.7
LOWEST ANNUAL MEAN			9.94
HIGHEST DAILY MEAN	270	134	717
LOWEST DAILY MEAN	7.1	3.0	3.0
ANNUAL SEVEN-DAY MINIMUM	7.5	3.2	3.2
INSTANTANEOUS PEAK FLOW		1530	8140
INSTANTANEOUS PEAK STAGE		5.02	9.65
ANNUAL RUNOFF (AC-FT)	16630	7200	18860
ANNUAL RUNOFF (CFSM)	1.93	.84	2.19
ANNUAL RUNOFF (INCHES)	26.21	11.34	29.72
10 PERCENT EXCEEDS	43	17	59
50 PERCENT EXCEEDS	15	5.8	14
90 PERCENT EXCEEDS	8.2	3.5	4.7

e Estimated

RIO BUCANA BASIN

50113950 LAGO CERRILLOS AT DAMSITE, PR

LOCATION.--Lat 18°04'41", long 66°34'38", Hydrologic Unit 21010004, on left bank west from intake house of dam, 0.7 mi (1.1 km) southwest from Iglesia San Mateo at Real Abajo, 3.2 mi (5.1 km) northeast from Hospital de Distrito de Ponce, and 2.2 mi (3.5 km) northwest from Escuela Yuca.

DRAINAGE AREA.--17.4 mi² (45.1 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--October 1992 to current year .

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Cerrillos Dam, a rockfilled ungated structure completed in 1992. Elevation of crest is 611 ft (186 m) above mean sea level, with a structural height of 323 ft (98 m) and a length of 1,555 ft (474 m). The dam has a capacity of approximately 47,900 ac-ft (59.1 hm³). The dam is operated by U.S. Army Corps of Engineers and its purpose is for flood control, water supply, power generation, and recreation. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 536.23 ft (163.44 m), Sept. 30, 1994; Minimum elevation, 416.53 ft (126.96 m), Oct. 1, 1992, (Revised).

EXTREMES OBSERVED FOR WATER YEAR 1993 (Revised).--Maximum elevation, 522.86 ft (159.37 m), Sept. 30; minimum elevation, 416.53 ft (126.96 m), Oct. 1.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 536.23 ft (163.44 m), Sept. 30; minimum elevation, 521.87 ft (159.06 m), Oct. 6.

Capacity Table

(based on data from U.S. Army Corps of Engineers)

Elevation, in feet	Contents in acre-feet	Elevation, in feet	Contents in acre-feet
328	0	525	16,990
426	3,206	558	25,786
492	10,621		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	418.70	478.01	494.73	498.24	503.81	505.93	507.16	516.61	519.17	519.67	518.73	517.04
2	420.65	478.58	494.82	498.36	503.99	505.97	507.17	518.88	519.15	519.77	518.72	517.15
3	421.62	479.07	494.73	498.53	504.13	506.01	507.29	519.78	519.53	518.97	518.80	517.39
4	423.07	478.93	494.83	498.66	504.12	506.03	507.32	519.44	519.80	518.95	518.83	517.60
5	424.39	478.91	495.13	498.78	504.23	506.07	507.34	519.67	518.81	519.08	518.85	517.70
6	427.42	482.56	495.45	498.89	504.30	506.81	507.35	519.75	519.04	519.19	518.89	517.79
7	432.24	483.06	495.60	499.02	504.40	506.14	507.36	519.49	519.22	519.37	518.98	517.85
8	436.05	483.49	495.29	499.10	504.47	506.30	507.41	518.89	519.21	519.53	519.00	517.88
9	438.88	483.93	494.73	499.23	504.54	506.36	507.50	520.00	518.83	519.62	519.02	517.99
10	441.35	484.32	494.52	499.32	504.61	506.40	507.53	519.02	519.04	518.67	519.14	518.92
11	444.09	484.71	494.76	499.42	504.66	506.44	507.75	519.03	519.23	518.88	519.16	519.23
12	445.99	485.52	495.00	499.52	504.75	506.46	507.95	519.20	519.42	519.17	519.21	519.34
13	447.58	486.25	495.21	499.62	504.83	506.50	508.61	519.36	519.61	519.37	519.26	519.47
14	449.48	486.79	495.46	499.69	504.90	506.54	508.89	518.85	519.36	519.59	519.30	519.51
15	451.03	487.38	495.71	499.80	504.95	506.67	509.15	519.67	519.09	519.39	516.68	519.62
16	451.79	488.90	495.84	499.88	505.13	506.69	509.35	519.95	519.30	519.27	517.46	519.65
17	453.42	490.43	495.90	499.99	505.22	506.72	509.44	520.18	519.42	519.37	517.60	519.76
18	453.91	491.26	496.03	500.05	505.27	506.73	509.55	519.89	520.17	A	517.65	520.01
19	454.63	491.75	496.15	500.13	505.43	506.75	509.63	519.55	519.83	A	517.76	520.12
20	455.74	494.01	496.10	500.23	505.49	506.75	509.77	519.06	519.09	A	517.82	520.44
21	456.65	493.89	496.23	500.30	505.55	506.77	509.83	520.72	519.33	520.10	517.95	520.61
22	457.53	494.02	496.36	500.37	505.60	506.79	509.90	519.18	519.55	519.58	518.20	520.73
23	465.92	493.92	496.52	500.46	505.66	506.79	509.95	519.23	519.68	518.96	517.05	520.94
24	466.43	494.22	496.67	500.53	505.70	506.88	510.11	519.65	519.67	519.13	516.35	521.14
25	466.49	494.10	496.77	500.60	505.73	506.94	510.19	519.34	519.69	519.20	516.34	521.25
26	468.87	494.29	496.99	500.66	506.46	506.97	510.23	520.02	519.78	519.34	516.37	521.54
27	470.40	494.62	497.17	500.77	506.52	507.00	510.30	520.81	518.87	519.43	516.59	521.73
28	471.55	494.40	497.32	501.46	506.60	507.04	510.58	519.94	519.18	519.54	516.76	522.29
29	474.25	494.41	497.72	503.08	---	507.08	513.03	519.18	519.37	519.59	516.83	522.33
30	475.79	494.60	497.91	503.45	---	507.09	514.71	519.25	519.57	519.65	516.82	522.71
31	476.97	---	498.11	503.63	---	507.15	---	519.30	---	519.70	516.94	---
MEAN	449.77	488.01	495.93	500.06	505.04	506.61	509.08	519.45	519.37	---	517.97	519.66
MAX	476.97	494.62	498.11	503.63	506.60	507.15	514.71	520.81	520.17	---	519.30	522.71
MIN	418.70	478.01	494.52	498.24	503.81	505.93	507.16	516.61	518.81	---	516.34	517.04

A No gage-height record

RIO BUCANA BASIN

351

50113950 LAGO CERRILLOS AT DAMSITE, PR-Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	522.22	526.12	527.78	529.00	529.69	530.26	530.35	530.62	531.23	531.45	530.84	A
2	522.42	526.20	527.79	529.02	529.67	530.37	530.35	530.60	531.53	531.43	530.82	A
3	522.19	526.31	527.82	529.02	529.67	530.39	530.35	530.57	531.66	531.47	530.79	A
4	522.20	526.41	527.84	529.02	529.67	530.40	530.35	530.55	531.69	531.43	530.81	A
5	522.09	526.45	527.86	529.03	529.65	530.41	530.35	530.53	531.70	531.42	530.77	A
6	522.13	526.52	527.88	529.04	529.61	530.42	530.35	530.57	531.67	531.39	530.77	A
7	522.19	526.57	527.91	529.04	529.61	530.43	530.49	530.57	531.67	531.38	530.76	A
8	522.08	526.60	527.91	529.03	529.62	530.43	530.52	530.56	531.66	531.36	531.57	A
9	522.36	526.63	527.94	529.03	529.61	530.43	530.51	530.55	531.66	531.32	531.67	A
10	522.56	526.71	527.92	529.04	529.59	530.44	530.51	530.88	531.63	531.29	531.66	A
11	522.76	526.76	527.98	529.05	529.59	530.44	530.55	531.00	531.63	531.27	A	A
12	522.89	526.82	527.99	529.04	529.59	530.45	530.55	531.05	531.61	531.25	A	A
13	522.99	526.84	528.05	529.06	529.57	530.48	530.55	531.07	531.58	531.25	A	A
14	523.15	526.87	528.30	529.05	529.58	530.49	530.54	531.19	531.56	531.16	A	533.02
15	523.23	526.92	528.26	529.05	529.58	530.51	530.52	531.27	531.61	531.23	A	533.00
16	523.62	527.00	528.34	529.05	529.58	530.54	530.50	531.27	531.61	531.17	A	533.00
17	524.01	527.07	528.36	529.06	529.57	530.53	530.49	531.35	531.67	531.14	A	533.08
18	524.22	527.13	528.38	529.05	529.56	530.52	530.49	531.39	531.67	531.16	A	533.22
19	524.43	527.18	528.39	529.10	529.54	530.52	530.43	531.42	531.66	531.15	A	533.21
20	524.56	527.21	528.77	A	529.54	530.50	530.42	531.42	531.66	531.13	A	533.75
21	524.67	527.26	528.82	529.80	529.53	530.51	530.42	531.42	531.63	531.10	A	534.08
22	524.77	527.28	528.84	529.11	529.53	530.51	530.40	531.41	531.61	531.07	A	534.16
23	524.89	527.33	528.91	529.55	529.55	530.50	530.39	531.40	531.59	531.06	A	534.76
24	525.13	527.37	528.92	529.63	529.56	530.43	530.38	531.37	531.57	530.99	A	535.60
25	525.25	527.39	528.93	529.67	529.54	530.42	530.37	531.32	531.55	531.05	A	535.82
26	525.34	527.44	528.94	529.68	529.51	530.42	530.53	531.32	531.53	531.00	A	535.94
27	525.44	524.49	528.96	529.67	529.50	530.41	530.60	531.30	531.52	530.98	A	535.98
28	525.74	527.68	528.97	529.67	530.09	530.39	530.63	531.28	531.51	530.97	A	535.98
29	525.87	527.72	528.98	529.67	---	530.39	530.63	531.27	531.49	530.93	A	536.05
30	525.99	527.73	528.99	529.67	---	530.37	530.63	531.25	531.47	530.88	A	536.23
31	526.04	---	529.00	529.66	---	530.35	---	531.26	---	530.87	A	---
MEAN	523.79	526.87	528.38	---	529.60	530.44	530.47	531.07	531.59	531.19	---	---
MAX	526.04	527.73	529.00	---	530.09	530.54	530.63	531.42	531.70	531.47	---	---
MIN	522.08	524.49	527.78	---	529.50	530.26	530.35	530.53	531.23	530.87	---	---

A No gage-height record

RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi² (46.1 km²), excludes 17.4 mi² (45.1 km²), upstream from Lago Cerrillos Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977 at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985 some low-flow regulation by construction upstream. Maximum discharge prior to regulation, 22,400 ft³/s (6.34 m³/s), Sept. 16, 1975, gage-height, 11.2 ft (3.414 m), site and datum then in use from floodmarks, from rating curve extended above 150 ft³/s (4.25 m³/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft³/s (0.062 m³/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	8.1	7.6	8.1	6.2	6.9	5.4	5.4	5.1	6.1	6.6	4.9
2	36	7.9	7.4	8.1	6.2	6.4	5.4	5.4	5.2	5.8	6.5	7.8
3	98	7.9	7.4	8.1	6.3	6.4	5.4	5.4	5.2	5.9	7.5	6.4
4	94	7.9	7.4	8.1	6.5	5.6	5.4	5.5	5.2	5.9	6.5	6.1
5	84	7.9	7.6	8.1	6.5	5.4	5.4	5.6	5.2	6.0	6.5	5.8
6	53	7.5	7.6	8.1	6.5	5.4	5.4	5.6	5.4	5.9	6.5	6.2
7	119	7.2	7.6	8.1	6.5	5.4	5.6	5.6	5.4	7.2	6.3	6.0
8	102	7.1	7.6	10	6.5	5.4	5.4	5.6	5.5	5.7	6.3	5.9
9	14	7.0	7.8	7.5	6.5	5.4	5.2	5.6	5.4	5.6	5.9	6.0
10	14	6.8	7.9	7.4	6.5	5.4	5.5	5.6	5.6	5.6	6.0	5.6
11	14	6.5	7.9	7.2	6.5	5.5	5.8	5.6	5.6	5.8	5.9	6.1
12	14	6.2	7.8	7.3	6.5	5.6	5.4	5.6	5.6	5.6	5.8	6.1
13	14	6.0	7.8	7.3	6.5	5.5	5.2	5.6	5.7	5.6	5.9	5.7
14	15	6.0	18	7.2	6.7	5.8	5.2	5.6	8.3	5.4	7.7	5.7
15	15	5.8	26	7.1	6.6	5.5	5.2	5.6	5.9	5.9	5.9	5.6
16	15	6.1	8.4	7.0	6.5	5.5	5.2	5.7	5.9	5.8	5.6	5.7
17	16	6.5	8.4	7.1	6.5	5.4	5.5	5.8	5.5	5.6	5.6	6.0
18	16	6.6	8.4	6.9	6.8	5.4	5.6	5.8	5.2	5.8	5.6	5.9
19	15	6.7	8.4	6.9	6.5	5.4	5.4	5.7	5.2	5.7	5.5	6.9
20	15	6.7	8.5	6.9	6.5	5.4	5.4	5.6	6.0	5.7	5.4	17
21	15	6.6	8.4	6.7	6.2	5.4	5.4	5.6	5.7	5.6	5.2	9.5
22	14	6.7	8.4	6.7	6.2	5.4	5.4	5.4	5.6	5.8	5.2	6.7
23	14	6.9	8.2	6.5	6.2	5.4	5.4	5.4	5.6	5.6	6.8	11
24	12	6.9	8.1	6.3	6.2	5.4	5.4	7.7	5.6	5.6	7.2	17
25	10	6.7	8.1	6.2	9.7	5.4	5.4	5.4	5.5	5.8	6.9	13
26	9.5	6.5	8.1	6.2	6.2	5.4	7.5	5.4	5.6	5.6	6.4	12
27	9.3	6.7	8.1	6.2	6.2	5.4	5.9	5.4	6.0	5.7	6.2	12
28	10	7.3	8.1	6.2	7.5	5.4	5.6	5.4	6.1	6.1	5.8	11
29	9.1	7.4	8.1	6.2	---	5.4	5.6	5.2	6.1	6.6	5.3	11
30	8.7	7.4	8.6	6.2	---	5.4	5.6	5.1	6.1	6.7	5.2	14
31	8.4	---	8.1	6.2	---	5.4	---	5.1	---	6.7	5.1	---
TOTAL	1005.0	207.5	275.8	222.1	184.2	172.1	165.2	173.0	170.0	182.4	188.8	248.6
MEAN	32.4	6.92	8.90	7.16	6.58	5.55	5.51	5.58	5.67	5.88	6.09	8.29
MAX	122	8.1	26	10	9.7	6.9	7.5	7.7	8.3	7.2	7.7	17
MIN	8.4	5.8	7.4	6.2	6.2	5.4	5.2	5.1	5.1	5.4	5.1	4.9
AC-FT	1990	412	547	441	365	341	328	343	337	362	374	493
CFSM	1.82	.39	.50	.40	.37	.31	.31	.31	.32	.33	.34	.47
IN.	2.10	.43	.58	.46	.38	.36	.35	.36	.36	.38	.39	.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	35.2	18.2	12.4	28.6	8.63	7.49	12.3	38.6	21.7	16.9	19.0	16.7
MAX	42.5	32.3	16.8	74.2	14.7	10.6	24.6	77.7	33.7	24.6	24.6	31.5
(WY)	1993	1993	1993	1992	1992	1992	1992	1993	1992	1991	1993	1992
MIN	30.8	6.92	8.90	4.52	4.37	5.55	5.51	5.58	5.67	5.88	6.09	8.29
(WY)	1992	1994	1994	1993	1993	1994	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1991 - 1994

ANNUAL TOTAL	7322.3	3194.7	
ANNUAL MEAN	20.1	8.75	20.3
HIGHEST ANNUAL MEAN			28.6
LOWEST ANNUAL MEAN			8.75
HIGHEST DAILY MEAN	314	May 27	900
LOWEST DAILY MEAN	3.2	Aug 14	.64
ANNUAL SEVEN-DAY MINIMUM	3.4	Aug 8	1.7
INSTANTANEOUS PEAK FLOW			1100
INSTANTANEOUS PEAK STAGE			6.07
ANNUAL RUNOFF (AC-FT)	14520	6340	14730
ANNUAL RUNOFF (CFSM)	1.13	.49	1.14
ANNUAL RUNOFF (INCHES)	15.30	6.68	15.52
10 PERCENT EXCEEDS	58	10	42
50 PERCENT EXCEEDS	7.2	6.2	8.9
90 PERCENT EXCEEDS	4.2	5.4	4.7

RIO BUCANA BASIN

353

50114000 RIO CERRILLOS NEAR PONCE, PR

Location.--Lat 18°04'15", long 66°34'51", Hydrologic unit 21010004, on right bank off Highway 139, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi² (46.1 km²)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
15...	1300	15	363	8.0	29.0	0.30	5.2	67	<10	K150	2000
DEC 28...	1140	8.1	365	8.1	26.0	7.3	7.8	94	13	2100	2600
FEB 1994											
28...	1410	6.1	355	7.7	25.0	<0.10	8.7	96	<10	50	<10
MAY 05...	1105	3.8	358	7.6	26.0	0.50	6.2	75	<10	K40	K40
JUN 29...	0905	6.1	365	7.6	25.0	9.5	2.6	31	43	K890	910
AUG 30...	0925	5.4	353	7.9	26.0	9.8	8.4	97	10	400	250

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
15...	160	53	6.4	20	0.7	1.0	150	<0.5	43	6.8	0.30
DEC 28...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
28...	--	--	--	--	--	--	150	--	--	--	--
MAY 05...	160	54	5.3	17	0.6	0.60	150	<0.5	32	7.3	0.30
JUN 29...	--	--	--	--	--	--	150	--	--	--	--
AUG 30...	160	53	6.0	17	0.6	0.80	150	--	32	7.6	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
15...	24	244	9.64	2	0.30	0.030	<1	<100	30	<1	<1
DEC 28...	--	--	--	7	<0.20	<0.010	--	--	--	--	--
FEB 1994				1	<0.20	<0.010	--	--	--	--	--
28...	--	--	--	1	<0.20	<0.010	--	--	--	--	--
MAY 05...	24	230	2.33	1	<0.20	0.020	<1	<100	30	<1	<1
JUN 29...	--	--	--	33	<0.20	0.040	--	--	--	--	--
AUG 30...	26	233	3.39	68	<0.20	0.060	--	--	--	--	--

K = non-ideal count

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO BUCANA BASIN

355

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR

LOCATION.--Lat 18°02'29", long 66°34'58", Hydrologic Unit 21010004, on left bank, 200 ft (61 m) upstream from bridge on Highway 14 and 4.0 mi (6.4 km) downstream from Lago Cerrillos Dam, 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA.--24.9 mi² (64.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Rio Bucaná Floodway Channel at Highway 14 bridge", October 1986 to July 1987 (maximum only), August 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.40 ft (35.500 m) above mean sea level. Prior to Oct. 1, 1986, crest-stage gage located at Highway 14 bridge, at elevation of mean sea level.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam 0.4 mi upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	5.4	4.9	4.4	4.8	7.7	4.4	4.3	4.3	4.7	4.0	4.2
2	29	5.4	4.9	4.4	4.7	6.5	4.5	4.3	4.4	4.9	3.8	5.3
3	82	5.3	4.9	4.3	4.4	5.6	4.8	4.2	5.0	4.9	4.1	4.6
4	87	5.2	5.0	4.3	4.4	4.4	4.8	4.2	4.7	5.0	3.8	4.2
5	89	5.2	5.0	4.4	3.9	4.7	4.8	4.3	4.7	5.0	3.6	4.1
6	80	5.0	4.9	4.2	3.4	4.3	4.8	4.1	4.7	4.6	3.6	4.3
7	136	4.9	4.7	4.3	3.3	4.2	5.8	4.3	4.6	4.6	3.6	4.3
8	125	4.8	4.7	6.0	3.1	4.3	4.6	4.1	4.6	4.2	3.9	3.9
9	44	4.7	4.7	4.8	3.1	4.1	4.2	4.2	4.7	3.9	4.1	3.8
10	14	4.7	4.7	4.4	3.2	4.3	5.1	4.3	4.7	4.1	3.8	3.6
11	7.4	4.9	4.7	4.4	3.4	4.1	6.5	4.4	5.1	4.1	3.6	6.1
12	6.7	4.9	4.7	4.7	3.3	4.2	5.0	4.4	5.9	4.0	3.6	4.2
13	6.3	5.0	4.7	4.7	4.2	4.4	4.5	4.3	5.3	3.7	3.5	4.1
14	6.0	5.2	11	4.5	4.7	4.5	4.6	4.3	6.2	3.6	4.9	4.1
15	5.7	4.8	18	4.3	4.3	4.3	4.5	4.4	6.0	4.1	4.0	4.1
16	8.3	4.8	9.6	4.2	4.1	4.4	4.5	4.3	5.2	4.7	3.5	4.3
17	6.3	5.5	4.3	4.5	4.0	3.9	5.0	4.5	5.5	4.2	3.4	6.1
18	5.7	6.2	4.2	4.5	4.2	4.1	4.7	4.2	5.0	5.3	3.6	5.2
19	5.4	5.6	7.6	4.5	3.9	4.1	4.3	4.4	4.9	4.9	4.1	8.6
20	5.5	5.1	4.8	4.6	3.8	4.1	4.3	4.1	5.1	4.4	4.0	42
21	5.4	5.1	4.4	4.7	3.7	4.1	4.1	4.0	5.3	4.3	3.9	6.7
22	5.2	4.9	4.5	4.4	3.7	4.3	4.0	4.1	4.9	4.1	3.8	5.4
23	5.2	4.8	4.6	4.5	3.9	4.4	4.0	4.0	4.9	4.3	4.4	19
24	5.3	4.8	4.2	4.7	3.8	4.2	3.9	5.5	4.4	4.0	6.6	110
25	6.6	4.7	4.2	4.5	7.3	4.1	3.9	4.4	4.3	5.6	7.5	10
26	5.8	4.7	4.2	4.5	3.9	4.2	7.1	4.2	4.4	4.2	4.0	7.3
27	5.0	4.8	4.3	4.5	3.7	4.4	6.5	4.2	4.4	4.0	4.0	6.7
28	14	5.9	4.3	4.4	6.5	4.2	4.5	4.3	4.6	4.0	3.8	6.3
29	17	5.4	4.3	4.4	---	4.3	4.3	4.3	4.6	4.0	3.8	6.2
30	5.9	4.9	4.7	4.4	---	4.4	4.3	4.2	4.5	4.0	3.8	7.4
31	5.4	---	4.4	4.5	---	4.3	---	4.3	---	4.0	3.7	---
TOTAL	997.1	152.6	170.1	139.9	114.7	139.1	142.3	133.1	146.9	135.4	125.8	316.1
MEAN	32.2	5.09	5.49	4.51	4.10	4.49	4.74	4.29	4.90	4.37	4.06	10.5
MAX	167	6.2	18	6.0	7.3	7.7	7.1	5.5	6.2	5.6	7.5	110
MIN	5.0	4.7	4.2	4.2	3.1	3.9	3.9	4.0	4.3	3.6	3.4	3.6
AC-FT	1980	303	337	277	228	276	282	264	291	269	250	627
CFSM	1.29	.20	.22	.18	.16	.18	.19	.17	.20	.18	.16	.42
IN.	1.49	.23	.25	.21	.17	.21	.21	.20	.22	.20	.19	.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1994, BY WATER YEAR (WY)

	1987	1988	1989	1990	1991	1992	1993	1994
MEAN	161	72.9	19.3	58.3	9.51	14.3	16.8	31.3
MAX	527	222	49.1	337	17.3	48.0	42.5	94.9
(WY)	1991	1988	1988	1992	1992	1989	1992	1989
MIN	15.1	5.09	5.49	4.51	4.10	4.49	4.74	4.29
(WY)	1993	1994	1994	1994	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1987 - 1994

ANNUAL TOTAL	7345.6	2713.1	
ANNUAL MEAN	20.1	7.43	48.3
HIGHEST ANNUAL MEAN			78.0
LOWEST ANNUAL MEAN			7.43
HIGHEST DAILY MEAN	331	Aug 15	4340
LOWEST DAILY MEAN	3.8	Apr 11	2.5
ANNUAL SEVEN-DAY MINIMUM	4.3	Dec 23	2.8
INSTANTANEOUS PEAK FLOW			17400
INSTANTANEOUS PEAK STAGE			13.48
ANNUAL RUNOFF (AC-FT)	14570	5380	34990
ANNUAL RUNOFF (CFSM)	.81	.30	1.94
ANNUAL RUNOFF (INCHES)	10.97	4.05	26.35
10 PERCENT EXCEEDS	54	6.5	88
50 PERCENT EXCEEDS	7.2	4.5	12
90 PERCENT EXCEEDS	4.7	3.9	4.6

RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR

LOCATION.--Lat 18°04'45", long 66°38'01", Hydrologic Unit 21010004, on right bank 30 ft (9 m) upstream from bridge on Highway 504, 0.2 mi (0.3 km) upstream from small unnamed tributary, 4.4 mi (7.1 km) upstream from Río Chiquito, and 4.7 mi (7.6 km) north of Plaza Degetau in Ponce.

DRAINAGE AREA.--8.82 mi² (22.84 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to June 1964 (monthly measurements only), July 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 470 ft (143 m), from topographic map. Prior to Dec. 4, 1964, non-recording gage at same site and datum.

REMARKS.--Records poor. Some low-flow regulation due to unknown activity upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	6.1	7.2	3.9	2.6	12	1.8	2.5	3.0	1.1	2.4	2.5
2	56	5.9	5.8	4.1	2.6	9.6	1.8	1.7	5.7	.76	1.4	4.8
3	44	5.8	5.5	4.0	2.8	3.1	1.8	1.5	e26	1.2	.90	3.9
4	61	5.7	6.0	4.1	2.7	2.5	2.4	1.6	e4.6	1.3	.86	3.4
5	46	5.0	6.4	3.9	2.6	2.5	1.9	1.5	e3.9	1.0	1.3	3.4
6	25	5.2	6.6	3.9	2.6	2.3	1.8	2.3	3.8	1.4	2.1	3.2
7	128	5.2	6.1	3.9	2.6	2.1	2.2	2.3	3.2	e2.5	1.4	3.9
8	72	5.2	6.0	3.9	2.6	2.1	5.3	1.5	2.6	e1.3	1.2	3.4
9	19	4.9	5.5	3.9	2.4	2.1	2.3	1.3	2.3	e1.1	4.1	3.2
10	11	5.2	5.5	3.9	2.4	2.3	7.0	12	1.8	e.89	1.7	3.6
11	10	5.6	7.6	4.0	2.4	2.1	10	5.6	1.9	e.70	1.2	16
12	9.0	5.4	7.1	4.2	2.3	2.1	6.6	3.9	1.8	e1.4	.93	24
13	8.2	4.9	16	4.0	2.3	2.9	3.1	2.2	2.1	e1.5	.93	9.9
14	7.4	5.0	24	4.3	2.8	2.3	2.2	2.2	2.1	e.89	5.4	2.5
15	7.2	5.2	12	3.9	3.2	2.3	3.2	2.5	15	e.75	5.1	1.5
16	12	6.2	5.9	4.0	2.8	3.0	1.9	1.9	17	e1.5	1.9	1.3
17	11	6.7	5.5	4.3	2.6	2.2	1.8	1.8	18	e1.1	1.2	4.3
18	7.9	7.3	5.5	4.0	2.3	2.0	1.9	1.6	12	e2.4	1.3	4.9
19	7.1	6.6	5.5	3.7	2.4	2.0	1.8	2.8	4.5	e3.0	6.4	2.3
20	6.5	5.4	13	3.3	e2.7	2.0	1.8	1.9	3.8	e1.7	7.4	92
21	5.6	5.5	7.3	3.5	2.6	2.0	2.0	1.6	3.3	e1.1	1.5	5.2
22	5.5	e13	6.9	4.8	2.5	2.0	2.3	1.4	3.1	e.99	1.1	1.6
23	7.4	e9.0	e5.5	11	2.5	1.9	1.8	2.5	2.7	e.87	1.4	69
24	16	e5.8	e5.0	7.7	2.8	1.8	1.7	4.2	2.9	e.78	11	153
25	7.5	e4.7	e4.7	3.4	2.3	1.8	2.0	4.6	2.6	e5.0	24	27
26	5.3	4.4	e4.7	3.1	2.2	1.8	1.9	2.1	1.6	e3.3	3.3	8.3
27	5.0	4.7	e4.4	2.8	2.2	1.8	36	1.7	1.1	e.98	2.1	4.8
28	41	5.3	e4.1	2.7	18	1.7	7.8	1.8	3.8	e.72	57	3.9
29	17	5.1	4.2	2.7	---	1.7	5.0	3.8	1.2	.61	30	3.5
30	8.2	4.6	4.3	2.7	---	1.7	3.8	3.1	.74	.64	5.3	53
31	6.4	---	4.1	2.7	---	1.7	---	2.6	---	3.8	2.6	---
TOTAL	755.2	174.6	217.9	126.3	86.8	83.4	126.9	84.0	158.14	46.28	188.42	523.3
MEAN	24.4	5.82	7.03	4.07	3.10	2.69	4.23	2.71	5.27	1.49	6.08	17.4
MAX	128	13	24	11	18	12	36	12	26	5.0	57	153
MIN	5.0	4.4	4.1	2.7	2.2	1.7	1.7	1.3	.74	.61	.86	1.3
AC-FT	1500	346	432	251	172	165	252	167	314	92	374	1040
CFSM	2.76	.66	.80	.46	.35	.31	.48	.31	.60	.17	.69	1.98
IN.	3.19	.74	.92	.53	.37	.35	.54	.35	.67	.20	.79	2.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1994, BY WATER YEAR (WY)

	MEAN	44.1	32.6	12.4	8.85	6.07	5.63	7.48	19.6	14.8	14.2	20.0	34.1
MAX	116	80.1	27.3	45.5	13.3	13.4	27.1	72.9	48.3	54.2	87.5	132	
(WY)	1991	1988	1988	1992	1976	1976	1983	1985	1979	1979	1979	1975	
MIN	11.9	5.82	2.71	3.65	2.62	2.08	2.45	1.65	2.33	1.49	4.20	7.22	
(WY)	1992	1994	1992	1989	1989	1977	1974	1973	1974	1994	1972	1991	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1964 - 1994

ANNUAL TOTAL	6047.0	2571.24	
ANNUAL MEAN	16.6	7.04	18.3
HIGHEST ANNUAL MEAN			38.0
LOWEST ANNUAL MEAN			7.04
HIGHEST DAILY MEAN	225	153	2440
LOWEST DAILY MEAN	4.1	.61	.61
ANNUAL SEVEN-DAY MINIMUM	4.4	1.0	1.0
INSTANTANEOUS PEAK FLOW		923	21000
INSTANTANEOUS PEAK STAGE		6.13	20.20
ANNUAL RUNOFF (AC-FT)	11990	5100	13260
ANNUAL RUNOFF (CFSM)	1.88	.80	2.07
ANNUAL RUNOFF (INCHES)	25.50	10.84	28.19
10 PERCENT EXCEEDS	32	12	40
50 PERCENT EXCEEDS	8.8	3.3	8.1
90 PERCENT EXCEEDS	5.3	1.4	3.0

e Estimated

RIO PORTUGUES BASIN

357

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
14...	1330	10	288	8.2	27.0	0.40	5.4	68	<10	500	230
DEC 28...	1445	9.7	316	8.4	25.5	0.70	7.2	85	13	2400	2300
FEB 1994											
28...	1105	2.2	322	7.3	23.0	0.10	8.0	92	<10	100	140
MAY 05...	0905	1.3	323	8.1	24.5	0.50	4.6	55	<10	K91	K180
JUN 29...	1055	1.2	313	8.1	24.5	0.60	4.6	55	<10	K130	340
AUG 22...	1000	1.1	304	8.0	27.5	0.30	8.0	100	14	160	230

DATE	HARD-NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
14...	140	45	7.2	10	0.4	1.5	150	<0.5	9.8	9.3	0.20
DEC 28...	--	--	--	--	--	--	140	--	--	--	--
FEB 1994											
28...	--	--	--	--	--	--	150	--	--	--	--
MAY 05...	150	48	7.7	13	0.5	2.1	150	<0.5	9.4	9.4	0.10
JUN 29...	--	--	--	--	--	--	140	--	--	--	--
AUG 22...	130	39	7.2	11	0.4	1.4	140	--	10	9.1	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 1993											
14...	22	194	5.24	1	<0.20	0.040	<1	<100	10	<1	<1
DEC 28...	--	--	--	1	<0.20	0.020	--	--	--	--	--
FEB 1994											
28...	--	--	--	<1	<0.20	0.030	--	--	--	--	--
MAY 05...	22	202	0.72	1	<0.20	0.050	<1	<100	20	<1	<1
JUN 29...	--	--	--	<1	<0.20	0.040	--	--	--	--	--
AUG 22...	22	184	0.55	5	<0.20	0.020	--	--	--	--	--

K = non-ideal count

RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO PORTUGUES BASIN

359

50116200 RIO PORTUGUES AT PONCE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'20", long 66°36'28", 1,300 ft (400 m) south of Las Americas Avenue Bridge, 1.2 mi (1.9 km) south of CSC 50115900, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA.--18.9 mi² (49.0 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
15...	0945	7.3	359	8.1	29.0	2.6	4.7	59	<10	550	270
DEC 23...	1245	--	--	--	--	0.70	--	--	10	--	--
FEB 1994											
25...	0940	5.4	403	7.4	22.0	20	6.7	76	12	3500	140
MAY 04...	1030	2.2	504	7.9	26.5	17	3.0	36	12	2100	K190
JUN 24...	0850	0.74	808	7.5	24.5	1.4	3.5	41	21	2000	840
AUG 23...	1015	3.5	470	7.6	28.0	1.0	4.0	50	18	5600	2200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
15...	140	43	8.9	24	0.9	1.6	140	<0.5	31	17	0.20
DEC 23...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	150	--	--	--	--
MAY 04...	200	55	14	46	1	1.4	170	<0.5	62	40	0.20
JUN 24...	--	--	--	--	--	--	200	--	--	--	--
AUG 23...	180	51	13	37	1	1.9	160	--	56	39	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
15...	20	230	4.54	3	0.30	0.050	<1	100	60	2	<1
DEC 23...	--	--	--	7	--	--	--	--	--	--	--
FEB 1994											
25...	--	--	--	47	0.40	0.090	--	--	--	--	--
MAY 04...	21	342	2.02	27	0.60	0.070	<1	<100	100	<1	<1
JUN 24...	--	--	--	7	0.60	0.090	--	--	--	--	--
AUG 23...	21	315	2.96	28	1.1	0.500	--	--	--	--	--

K = non-ideal count

RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
15...	<10	380	<1	30	<0.10	<1	<1	<10	<0.010	<1	0.02
DEC											
23...	--	--	--	--	--	--	--	--	--	--	--
FEB 1994											
25...	--	--	--	--	--	--	--	--	--	--	--
MAY											
04...	<10	810	2	90	<0.10	<1	<1	10	<0.010	<1	<0.02
JUN											
24...	--	--	--	--	--	--	--	--	--	--	--
AUG											
23...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 24...	0850	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.01	<0.010	<0.010
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
JUN 1994 24...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHERNE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUN 1994 24...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	

RIO GUAYANILLA BASIN

361

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA.--18.9 mi² (49.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	7.4	5.4	3.4	2.7	e3.5	3.1	3.9	2.5	3.4	3.5	1.5
2	18	8.5	5.2	3.3	2.6	e6.6	5.7	3.0	2.9	4.9	1.6	1.5
3	75	34	4.6	3.0	2.9	e8.8	5.5	2.7	48	3.5	1.3	2.1
4	56	23	4.6	2.8	3.0	e6.4	6.0	2.6	5.8	6.1	1.1	1.3
5	29	36	5.0	3.0	3.5	e5.0	4.2	2.7	2.5	4.6	1.7	.95
6	70	15	4.9	2.9	3.4	e4.5	8.8	3.9	2.0	7.2	1.6	1.1
7	131	8.5	4.5	3.1	3.5	e4.3	5.7	2.5	2.0	2.6	1.0	1.5
8	107	8.8	4.3	3.6	3.2	e4.1	3.1	2.2	2.0	2.3	1.1	1.2
9	53	8.6	4.0	3.0	3.1	e4.0	2.3	2.3	1.8	1.7	2.4	.96
10	38	8.9	4.0	3.0	3.0	e3.7	11	3.6	1.8	1.6	2.7	.91
11	31	132	4.3	3.3	2.7	e3.5	20	2.4	1.7	1.4	2.0	5.5
12	26	e33	3.7	4.5	2.2	e3.6	16	1.7	1.7	1.7	1.2	4.1
13	22	e17	4.2	3.2	2.2	e3.8	4.1	1.7	1.9	1.4	.93	4.5
14	20	16	32	3.7	2.7	4.9	3.6	1.9	2.0	1.2	8.5	2.1
15	18	e11	9.3	3.1	3.8	4.3	11	2.0	1.8	1.4	13	1.6
16	25	9.3	4.9	3.0	3.0	10	6.1	2.0	2.6	3.0	1.6	1.4
17	26	e15	4.3	2.9	2.4	5.4	4.5	2.4	2.7	2.2	.89	1.4
18	19	e17	4.1	3.2	2.3	4.4	4.1	2.4	2.0	1.4	1.9	4.0
19	15	12	4.2	2.8	2.9	4.3	3.8	2.2	2.0	2.5	1.8	4.1
20	14	14	11	2.8	5.9	3.9	3.6	2.0	1.9	2.0	3.9	36
21	12	13	6.5	3.4	6.4	4.0	3.1	1.6	2.1	1.3	1.7	24
22	12	9.0	35	4.7	6.2	3.9	3.1	1.3	1.9	1.1	1.1	4.3
23	11	7.9	8.5	7.1	9.0	3.6	e2.8	1.4	2.2	.98	40	5.1
24	11	7.9	4.6	18	15	3.4	2.9	1.7	1.9	.84	40	156
25	12	7.4	4.0	11	6.7	3.4	4.3	1.4	1.9	1.8	37	40
26	8.6	6.2	3.7	5.3	6.0	3.4	2.5	1.7	1.9	2.1	7.9	17
27	9.8	6.0	3.7	5.7	6.0	3.4	23	1.9	2.1	1.5	3.6	8.1
28	20	5.6	3.5	3.6	9.7	3.3	30	2.5	1.9	1.0	2.3	24
29	18	6.0	3.4	2.8	---	3.4	8.3	2.7	2.5	.84	2.9	9.9
30	10	5.7	3.5	2.8	---	4.0	6.3	2.9	2.7	.77	1.8	153
31	7.4	---	3.4	2.6	---	3.7	---	2.9	---	7.7	1.4	---
TOTAL	958.8	509.7	208.3	130.6	126.0	138.5	218.5	72.1	112.7	76.03	193.42	519.12
MEAN	30.9	17.0	6.72	4.21	4.50	4.47	7.28	2.33	3.76	2.45	6.24	17.3
MAX	131	132	35	18	15	10	30	3.9	48	7.7	40	156
MIN	7.4	5.6	3.4	2.6	2.2	3.3	2.3	1.3	1.7	.77	.89	.91
AC-FT	1900	1010	413	259	250	275	433	143	224	151	384	1030
CFSM	1.64	.90	.36	.22	.24	.24	.39	.12	.20	.13	.33	.92
IN.	1.89	1.00	.41	.26	.25	.27	.43	.14	.22	.15	.38	1.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1994, BY WATER YEAR (WY)

MEAN	65.2	51.1	19.3	10.8	7.19	5.95	10.9	29.1	15.1	11.8	17.8	39.3
MAX	167	110	41.9	27.5	11.4	13.2	26.6	80.4	41.0	25.9	48.5	102
(WY)	1986	1988	1988	1992	1985	1989	1983	1985	1987	1986	1988	1981
MIN	16.0	17.0	6.72	4.21	3.10	2.85	4.39	2.33	3.28	2.45	6.24	7.46
(WY)	1983	1994	1994	1994	1990	1981	1984	1994	1991	1994	1994	1983

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1981 - 1994

ANNUAL TOTAL	7746.9	3263.77	
ANNUAL MEAN	21.2	8.94	23.2
HIGHEST ANNUAL MEAN			33.1
LOWEST ANNUAL MEAN			8.94
HIGHEST DAILY MEAN	218	156	1500
LOWEST DAILY MEAN	2.9	.77	.77
ANNUAL SEVEN-DAY MINIMUM	3.1	1.1	1.1
INSTANTANEOUS PEAK FLOW		1400	14700
INSTANTANEOUS PEAK STAGE		10.54	20.40
ANNUAL RUNOFF (AC-FT)	15370	6470	16830
ANNUAL RUNOFF (CFSM)	1.12	.47	1.23
ANNUAL RUNOFF (INCHES)	15.25	6.42	16.70
10 PERCENT EXCEEDS	41	19	51
50 PERCENT EXCEEDS	11	3.6	9.9
90 PERCENT EXCEEDS	4.2	1.6	3.4

e Estimated

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA.--22.8 mi² (59.1 km²).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993										
18...	1220	4.0	361	7.8	31.0	1.5	5.4	70	<10	200
DEC 23...	1045	--	--	--	--	17	--	--	23	--
MAR 1994										
04...	1020	0.0	456	7.2	27.0	0.80	6.4	80	11	6100
APR 13...	0910	0.64	808	7.5	27.5	3.1	1.6	20	30	K10
JUN 22...	0915	0.63	949	7.2	28.0	1.0	0.2	3	18	250
AUG 24...	1015	8.9	326	7.2	27.0	200	5.0	62	33	2000

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
18...	150	42	12	17	0.6	3.1	140	<0.5	37	17	0.10
DEC 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
04...	--	--	--	--	--	--	160	--	--	--	--
APR 13...	250	71	18	69	2	8.9	240	3.5	78	63	0.20
JUN 22...	--	--	--	--	--	--	230	--	--	--	--
AUG 24...	140	35	13	35	1	4.8	94	--	120	560	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
18...	19	231	2.47	13	0.30	0.270	1	100	30	3	<1
DEC 23...	--	--	--	9	0.60	0.840	--	--	--	--	--
MAR 1994				7	0.60	0.140	--	--	--	--	--
APR 13...	27	479	0.83	8	--	--	1	<100	180	<1	<1
JUN 22...	--	--	--	1	3.0	2.90	--	--	--	--	--
AUG 24...	13	837	20.1	256	0.50	0.070	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO YAUCO BASIN

50125780 LAGO LUCCHETTI AT DAMSITE, PR

LOCATION.--Lat 18°05'37", long 66°51'54", Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA.--17.4 mi² (45.1 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm³) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow type spillway with a clear length of 171 ft (52 m) and a crest elevation of 570 ft (174 m), occupies the central portion of the dam. The spillway was designed for a maximum capacity of 62,800 ft³/s (1,778 m³/s) at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 572.19 ft (174.40 m), May 27, 1993; minimum elevation, 512.09 ft (156.08 m), Sept. 9, 1994.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 569.72 ft (173.65 m), Nov. 4; minimum elevation, 512.09 ft (156.08 m), Sept. 9.

Capacity Table
(based on data from Puerto Rico Water Resources Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
512	1,505	540	5,165
520	2,385	550	7,020
525	2,965	561	9,600
527	3,255	563	10,125
530	3,695	571	12,125
532	3,975	573	12,645

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	566.85	568.34	559.54	560.70	558.57	559.63	566.77	566.47	560.09	543.11	A	513.76
2	566.85	568.87	558.95	560.64	558.71	559.89	566.66	566.42	559.34	542.55	A	513.59
3	567.53	569.66	559.23	559.96	558.61	560.96	566.70	566.36	558.57	541.46	A	513.48
4	568.31	569.22	559.78	559.92	558.54	560.72	566.65	566.30	558.50	A	A	513.47
5	A	568.81	559.76	558.98	558.42	560.65	565.86	565.70	558.45	A	A	513.41
6	A	568.89	559.87	557.77	558.31	560.61	565.57	564.90	557.61	A	A	512.28
7	A	569.25	560.03	558.45	558.23	561.94	565.37	564.84	556.54	A	A	512.27
8	A	568.98	560.26	558.86	558.16	562.58	565.18	564.78	555.94	A	A	512.18
9	A	568.99	560.21	559.00	558.08	563.71	565.13	564.72	555.30	A	A	514.99
10	A	568.77	A	559.38	558.01	563.52	565.12	564.05	554.29	A	A	519.08
11	A	568.37	560.15	559.98	557.46	564.22	565.77	563.26	553.58	A	A	520.33
12	A	568.01	560.11	560.55	557.19	565.21	A	562.40	552.82	A	A	522.32
13	A	567.97	560.34	560.22	557.12	565.68	A	562.33	552.75	A	A	520.64
14	565.33	567.62	560.38	560.12	557.26	566.22	A	563.74	552.69	A	A	520.56
15	564.55	567.77	561.02	560.18	557.23	566.15	A	564.60	552.16	A	A	520.47
16	564.96	566.11	561.43	560.17	557.16	566.90	A	564.57	551.33	A	A	520.35
17	565.16	566.16	561.45	560.09	556.82	567.04	A	564.53	550.65	A	A	520.31
18	565.27	565.61	561.29	559.87	556.58	566.80	A	563.82	550.35	A	A	520.31
19	565.79	565.09	561.19	559.83	556.03	566.60	A	562.94	550.27	A	A	520.70
20	566.18	564.58	561.08	559.83	555.96	566.28	565.58	562.10	549.26	A	A	521.69
21	566.35	A	561.30	559.80	556.04	567.15	565.80	561.28	548.98	A	A	521.81
22	566.74	A	561.21	559.25	556.37	567.08	566.07	561.54	548.28	A	A	521.82
23	566.25	A	560.74	559.16	556.48	567.00	566.30	562.11	547.39	A	A	521.95
24	565.63	A	560.69	559.23	556.63	566.92	567.82	561.73	547.27	A	A	523.69
25	565.87	A	560.67	559.31	557.35	566.84	568.78	561.65	547.17	A	A	524.70
26	565.91	561.41	560.61	559.32	557.52	566.76	568.86	561.76	547.10	A	A	524.77
27	566.60	561.22	560.57	559.30	557.45	566.65	568.00	562.02	546.00	A	A	524.77
28	567.55	560.96	560.51	559.24	558.75	566.55	567.20	561.16	544.88	A	A	524.75
29	568.61	560.62	560.46	558.65	---	567.01	565.83	561.09	543.80	A	A	525.10
30	568.61	A	560.46	558.63	---	567.16	566.56	561.03	543.72	A	514.70	526.66
31	568.24	---	560.69	558.58	---	567.26	---	560.96	---	A	514.59	---
MEAN	---	---	---	559.52	557.47	564.89	---	563.39	551.84	---	---	519.54
MAX	---	---	---	560.70	558.75	567.26	---	566.47	560.09	---	---	526.66
MIN	---	---	---	557.77	555.96	559.63	---	560.96	543.72	---	---	512.18

A No gage-height record.

RIO LOCO BASIN
50129700 RIO LOCO AT GUANICA, PR

365

WATER-QUALITY RECORDS

LOCATION.--Lat 17°58'33", long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
14...	1545	--	252	7.8	30.0	28	4.2	54	<10	740	1100
DEC											
23...	0915	--	--	--	--	15	--	--	20	--	--
MAR 1994											
04...	0900	--	2200	7.4	26.0	0.50	2.4	42	190	270	830
APR											
13...	1040	--	11800	7.2	28.0	--	1.4	17	--	410	610
JUN											
22...	1010	--	25900	7.1	29.5	1.2	0.5	6	500	K150	240
AUG											
24...	0900	--	2340	7.2	30.0	0.60	0.6	8	430	220	3900

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
14...	110	27	11	11	0.5	2.1	110	<0.5	12	11	0.20
DEC											
23...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
04...	--	--	--	--	--	--	220	--	--	--	--
APR											
13...	--	--	--	--	--	--	210	<0.5	--	--	--
JUN											
22...	--	--	--	--	--	--	230	--	--	--	--
AUG											
24...	--	--	--	180	--	180	210	--	1100	8400	0.50

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM, TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)	COPPER, TOTAL RECOV-ERABLE (UG/L AS Cu)
OCT 1993											
14...	19	159	24	0.30	0.160	<1	<100	30	<1	13	<10
DEC											
23...	--	--	17	0.30	0.050	--	--	--	--	--	--
MAR 1994											
04...	--	--	10	0.70	0.150	--	--	--	--	--	--
APR											
13...	--	--	--	--	--	2	<100	980	<1	1	20
JUN											
22...	--	--	14	0.30	0.040	--	--	--	--	--	--
AUG											
24...	19	--	13	0.30	0.070	--	--	--	--	--	--

K = non-ideal count

RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993 14...	2000	1	90	<0.10	<1	<1	<10	<0.010	--	<0.02
DEC 23...	--	--	--	--	--	--	--	--	--	--
MAR 1994 04...	--	--	--	--	--	--	--	--	--	--
APR 13...	160	<1	110	<0.10	<1	<1	20	<0.010	<1	0.04
JUN 22...	--	--	--	--	--	--	--	--	--	--
AUG 24...	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 22...	1010	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994 22...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994 22...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

RIO GUANAJIBO BASIN

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on right bank, at bridge on Hwy 119, 0.6 mi (1.0 km) southwest of junction of Highways 119 and 2, 0.2 mi (0.3 km) northeast of junction of Highways 119 and 102, 0.7 mi (1.1 km) east from public Plaza of San Germán.

DRAINAGE AREA.--34.6 mi² (89.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 148 ft (45 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	15	17	11	6.8	19	11	8.6	3.1	2.3	6.6	6.2
2	60	17	15	11	7.2	29	38	6.7	3.1	2.1	5.2	38
3	73	24	15	12	6.6	8.9	49	6.1	2.5	2.7	3.7	13
4	49	29	13	12	6.7	6.4	10	5.7	2.4	7.3	5.2	7.2
5	35	17	13	12	6.9	6.3	38	6.2	2.4	19	6.2	6.0
6	44	15	12	9.8	6.5	6.5	49	5.8	2.8	6.7	5.5	11
7	122	19	12	23	8.5	6.1	91	5.6	2.4	7.3	5.3	7.0
8	114	19	11	15	8.9	6.0	59	5.6	3.2	6.1	26	4.9
9	69	20	12	10	8.0	6.3	25	5.0	3.6	3.9	9.7	4.0
10	51	20	12	9.8	7.0	6.6	18	5.1	3.6	3.6	15	3.8
11	45	23	12	10	6.6	6.4	15	6.1	4.1	3.6	7.1	26
12	40	24	13	9.9	7.1	20	23	7.0	4.1	3.2	5.1	7.0
13	37	23	13	8.9	6.6	27	10	6.6	4.1	2.7	3.8	4.1
14	37	22	12	8.2	9.0	8.6	9.1	5.1	5.0	2.4	54	3.1
15	34	22	13	7.8	8.6	7.9	16	5.2	4.3	2.7	14	3.0
16	62	19	14	8.1	8.9	6.9	45	4.5	3.8	4.5	6.9	2.8
17	53	18	15	7.8	5.0	6.1	20	4.1	2.7	3.8	26	57
18	41	18	15	7.9	5.2	6.0	13	3.5	2.7	2.9	28	52
19	36	16	15	7.3	5.6	6.3	10	3.6	3.1	3.6	88	18
20	32	17	16	7.6	5.5	7.7	8.0	3.6	2.6	2.8	54	220
21	27	16	17	7.4	5.0	8.3	6.9	3.2	2.2	3.1	13	79
22	26	17	14	6.3	4.0	6.8	6.6	2.9	3.3	3.1	8.1	74
23	24	17	14	16	6.0	8.8	5.3	2.6	2.9	2.9	e32	92
24	22	17	12	27	7.3	7.5	5.5	2.9	3.1	2.8	32	125
25	21	17	12	9.0	6.0	7.2	5.4	3.5	3.1	29	25	86
26	19	18	12	7.1	6.9	6.7	5.4	6.1	3.5	27	11	39
27	16	18	12	7.8	7.7	8.1	65	6.2	19	11	7.2	19
28	22	21	12	12	22	9.4	74	6.4	8.6	7.5	6.3	36
29	24	21	10	6.5	---	8.5	21	5.6	3.3	6.0	12	20
30	16	17	10	8.2	---	7.2	11	4.4	2.6	7.5	5.2	102
31	14	---	10	7.6	---	5.8	---	4.8	---	14	5.3	---
TOTAL	1317	576	405	324.0	206.1	288.3	763.2	158.3	117.2	207.1	532.4	1166.1
MEAN	42.5	19.2	13.1	10.5	7.36	9.30	25.4	5.11	3.91	6.68	17.2	38.9
MAX	122	29	17	27	22	29	91	8.6	19	29	88	220
MIN	14	15	10	6.3	4.0	5.8	5.3	2.6	2.2	2.1	3.7	2.8
MRD	37	18	13	9.0	6.8	7.2	15	5.2	3.1	3.6	8.1	18
AC-FT	2610	1140	803	643	409	572	1510	314	232	411	1060	2310
CFSM	1.23	.55	.38	.30	.21	.27	.74	.15	.11	.19	.50	1.12
IN.	1.42	.62	.44	.35	.22	.31	.82	.17	.13	.22	.57	1.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1994, BY WATER YEAR (WY)

	MEAN	89.2	52.6	24.5	26.0	12.5	8.11	19.0	38.3	16.7	14.5	20.9	37.6
MAX	205	123	52.2	37.3	26.2	11.5	25.4	69.5	46.3	23.0	22.8	53.7	
(WY)	1993	1993	1993	1992	1993	1993	1993	1993	1993	1993	1993	1992	
MIN	20.4	15.8	8.21	10.5	4.32	3.52	11.7	5.11	3.91	6.68	17.2	12.9	
(WY)	1992	1992	1992	1994	1992	1992	1992	1994	1994	1994	1994	1991	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1991 - 1994

ANNUAL TOTAL	11241.0	6060.7	
ANNUAL MEAN	30.8	16.6	31.3
HIGHEST ANNUAL MEAN			56.4
LOWEST ANNUAL MEAN			16.6
HIGHEST DAILY MEAN	300	220	817
LOWEST DAILY MEAN	7.0	2.1	1.5
ANNUAL SEVEN-DAY MINIMUM	7.8	2.7	1.8
INSTANTANEOUS PEAK FLOW		753	6610
INSTANTANEOUS PEAK STAGE		7.14	13.23
ANNUAL RUNOFF (AC-FT)	22300	12020	22640
ANNUAL RUNOFF (CFSM)	.89	.48	.90
ANNUAL RUNOFF (INCHES)	12.09	6.52	12.27
10 PERCENT EXCEEDS	60	38	65
50 PERCENT EXCEEDS	21	8.6	14
90 PERCENT EXCEEDS	12	3.2	3.7

e Estimated

RIO GUANAJIBO BASIN

369

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°07'18", long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán.

DRAINAGE AREA.--45.5 mi² (117.8 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER QUALITY DATA, WATER YEARS OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML)	STREP-TOCOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
18...	1415	50	423	8.0	28.0	1.0	4.6	58	<10	480	220
DEC 22...	0925	--	--	--	--	1.0	--	--	17	--	--
MAR 1994											
04...	0755	8.8	650	7.5	25.0	0.30	4.4	53	<10	400	310
APR 15...	1000	19	600	7.6	25.0	--	3.5	41	--	K140	K260
JUN 22...	1115	1.3	695	8.5	31.0	0.90	1.7	22	48	K10	K190
AUG 25...	1005	25	470	7.6	28.0	5.2	3.2	40	12	2000	910

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
18...	200	21	35	12	0.4	1.9	210	<0.5	15	15	<0.10
DEC 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
04...	--	--	--	--	--	--	200	--	--	--	--
APR 15...	--	--	--	--	--	--	230	1.4	--	--	--
JUN 22...	--	--	--	--	--	--	240	--	--	--	--
AUG 25...	220	26	37	30	0.9	2.9	200	--	29	40	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
18...	33	259	35.0	2	0.30	0.160	<1	100	50	<1	7
DEC 22...	--	--	--	1	0.90	1.00	--	--	--	--	--
MAR 1994											
04...	--	--	--	4	0.90	1.10	--	--	--	--	--
APR 15...	--	--	--	--	--	--	1	<100	90	<1	5
JUN 22...	--	--	--	1	0.50	1.10	--	--	--	--	--
AUG 25...	32	317	21.0	18	0.50	0.570	--	--	--	--	--

K = non-ideal count

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued

WATER QUALITY DATA, WATER YEARS OCTOBER 1993- SEPTEMBER 1994

[illegible]

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003 at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario plaza.

DRAINAGE AREA.--18.3 mi² (47.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	43	35	16	14	16	10	14	13	9.3	17	27
2	123	47	33	16	14	25	14	13	37	9.9	17	26
3	146	61	39	15	14	14	26	13	29	47	16	25
4	171	42	30	14	14	12	15	13	15	67	23	23
5	140	38	35	14	15	11	11	13	16	38	22	22
6	207	38	41	13	15	11	11	13	17	116	20	21
7	223	37	30	14	14	11	17	48	16	83	54	50
8	172	36	28	14	14	11	17	31	15	38	25	43
9	129	36	25	16	14	10	12	17	23	23	44	27
10	126	43	25	18	16	10	11	15	22	20	35	26
11	94	38	24	15	14	9.7	12	32	15	17	20	24
12	78	37	24	16	13	16	12	20	14	16	17	41
13	71	36	44	15	14	39	11	13	17	15	20	33
14	67	36	27	15	14	16	11	47	e18	15	91	28
15	69	36	23	15	14	13	21	45	e20	17	58	26
16	93	36	21	16	13	13	39	257	49	20	28	24
17	91	38	20	15	13	12	61	89	37	16	24	172
18	66	35	20	14	12	11	55	38	19	15	27	84
19	59	34	20	14	12	11	45	e25	13	15	44	42
20	55	36	23	14	12	10	28	e21	12	15	42	90
21	52	36	21	14	12	10	19	e18	11	17	28	141
22	48	35	20	15	12	9.9	15	20	10	17	25	176
23	46	34	19	19	13	9.7	13	17	11	17	80	108
24	75	33	18	16	13	9.7	12	16	10	19	79	97
25	51	33	17	16	12	9.6	11	15	10	18	39	64
26	74	33	17	15	10	28	10	14	e14	18	29	50
27	100	32	17	15	10	18	68	14	e10	17	25	91
28	76	32	16	15	12	11	57	14	e9.8	18	125	53
29	76	40	16	15	---	20	24	15	10	17	61	53
30	56	42	16	15	---	25	17	15	9.5	20	35	48
31	46	---	16	15	---	12	---	17	---	19	29	---
TOTAL	2973	1133	760	469	369	444.6	685	952	522.3	809.2	1199	1735
MEAN	95.9	37.8	24.5	15.1	13.2	14.3	22.8	30.7	17.4	26.1	38.7	57.8
MAX	223	61	44	19	16	39	68	257	49	116	125	176
MIN	46	32	16	13	10	9.6	10	13	9.5	9.3	16	21
AC-FT	5900	2250	1510	930	732	882	1360	1890	1040	1610	2380	3440
CFSM	5.24	2.06	1.34	.83	.72	.78	1.25	1.68	.95	1.43	2.11	3.16
IN.	6.04	2.30	1.54	.95	.75	.90	1.39	1.94	1.06	1.64	2.44	3.53

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1994, BY WATER YEAR (WY)

	MEAN	109	71.7	29.5	20.3	16.7	20.7	24.1	48.5	46.5	43.2	57.9	97.1
MAX	206	117	43.2	31.8	30.2	77.0	57.7	122	91.1	75.2	102	157	
(WY)	1986	1990	1990	1990	1993	1989	1993	1993	1989	1989	1989	1993	
MIN	33.2	16.1	9.92	15.1	8.55	10.1	11.9	15.8	12.0	23.2	25.1	32.7	
(WY)	1992	1992	1992	1994	1992	1992	1991	1990	1992	1990	1991	1986	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1986 - 1994
ANNUAL TOTAL	22488	12051.1	
ANNUAL MEAN	61.6	33.0	48.9
HIGHEST ANNUAL MEAN			70.6
LOWEST ANNUAL MEAN			30.8
HIGHEST DAILY MEAN	525	May 30	257
LOWEST DAILY MEAN	11	Apr 23	9.3
ANNUAL SEVEN-DAY MINIMUM	13	Mar 16	10
INSTANTANEOUS PEAK FLOW			2200
INSTANTANEOUS PEAK STAGE			9.02
INSTANTANEOUS LOW FLOW			13.64
ANNUAL RUNOFF (AC-FT)	44600	23900	35440
ANNUAL RUNOFF (CFSM)	3.37	1.80	2.67
ANNUAL RUNOFF (INCHES)	45.71	24.50	36.32
10 PERCENT EXCEEDS	141	70	116
50 PERCENT EXCEEDS	40	20	26
90 PERCENT EXCEEDS	16	11	11

e Estimated

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--WATER YEARS 1979 TO CURRENT YEAR.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: OCTOBER 1985 TO SEPTEMBER 1994

INSTRUMENTATION.--USD-49 SEDIMENT SAMPLER SINCE OCTOBER 1985. AUTOMATIC SEDIMENT SAMPLER SINCE 1986

REMARKS.--sediment samples were collected by a local observer once daily during low flow and more than once daily during high flow events for concentration and particle size analyses. Sediment samples are collected periodically by survey staff. Automatic sediment sampler set to collect samples above 200 cfs.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,150 mg/L October 7, 1985; Minimum daily mean, 1 mg/L January 28, 1990.

SEDIMENT LOADS: Maximum daily, 74,700 tons (67,800 tonnes) October 7, 1985; Minimum daily, 0.05 ton (0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR 1994.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,070 mg/L May 16, 1994; Minimum daily mean, 1.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 3,680 tons (3,340 tonnes) May 16, 1994; Minimum daily 0.08 ton (0.06 tonne) December 12, 1993.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
28...	1400	148	240	7.9	26.0	4.7	5.8	71	<10	440	610
DEC											
22...	1110	--	--	--	--	0.90	--	--	<10	--	--
MAR 1994											
03...	1330	14	279	8.0	26.0	0.90	10.0	122	<10	100	150
APR											
14...	0930	10	291	8.1	24.0	1.1	8.8	102	<10	K120	K110
JUN											
23...	1110	11	283	8.2	27.0	1.1	7.5	92	65	K130	K160
AUG											
25...	1155	36	228	8.1	27.5	2.8	5.0	62	<10	3500	K1100

DATE	HARD- NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS- SOLVED (MG/L AS Ca)	MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg)	SODIUM, DIS- SOLVED (MG/L AS Na)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS Cl)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
28...	110	22	14	6.7	0.3	1.7	110	<0.5	6.6	6.0	0.10
DEC											
22...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
03...	--	--	--	--	--	--	130	--	--	--	--
APR											
14...	140	28	17	14	0.5	1.5	140	<0.5	19	95	0.10
JUN											
23...	--	--	--	--	--	--	130	--	--	--	--
AUG											
25...	120	22	16	6.2	0.2	1.3	120	--	8.0	8.2	0.10

K = non-ideal count

WATER QUALITY DATA, WATER YEARS OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR-- Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	93	12	3.0	43	11	1.2	35	11	1.1
2	123	162	104	47	26	7.2	33	4	.40
3	146	228	104	61	53	14	39	2	.23
4	171	455	288	42	19	2.2	30	1	.08
5	140	81	33	38	10	1.0	35	12	1.5
6	207	479	589	38	12	1.2	41	27	3.5
7	223	718	918	37	14	1.3	30	6	.51
8	172	111	58	36	7	.73	28	1	.12
9	129	31	12	36	6	.58	25	4	.28
10	126	12	4.1	43	21	3.5	25	4	.30
11	94	12	3.1	38	7	.78	24	1	.09
12	78	11	2.3	37	5	.55	24	1	.06
13	71	11	2.0	36	5	.48	44	31	8.2
14	67	7	1.3	36	5	.52	27	23	1.9
15	69	23	5.5	36	5	.48	23	7	.48
16	93	121	48	36	5	.48	21	4	.22
17	91	107	34	38	8	.94	20	4	.21
18	66	39	7.8	35	11	1.2	20	3	.16
19	59	14	2.3	34	7	.71	20	3	.16
20	55	5	.76	36	5	.51	23	3	.17
21	52	2	.27	36	4	.45	21	3	.20
22	48	2	.25	35	5	.47	20	7	.37
23	46	2	.24	34	4	.36	19	13	.64
24	75	68	31	33	3	.31	18	14	.66
25	51	12	1.8	33	3	.26	17	11	.51
26	74	140	56	33	3	.26	17	8	.37
27	100	260	142	32	3	.26	17	4	.20
28	76	108	27	32	8	.77	16	3	.12
29	76	60	16	40	23	2.9	16	3	.12
30	56	29	5.0	42	24	3.1	16	3	.12
31	46	16	2.0	---	---	---	16	4	.17
TOTAL	2973	---	2501.72	1133	---	48.70	760	---	23.15

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR-- Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	16	5	.22	14	2	.10	16	9	.45
2	16	5	.22	14	2	.08	25	9	.74
3	15	3	.15	14	2	.09	14	4	.18
4	14	4	.15	14	3	.11	12	3	.11
5	14	6	.21	15	4	.16	11	3	.10
6	13	7	.24	15	7	.27	11	4	.13
7	14	5	.20	14	10	.38	11	5	.14
8	14	3	.12	14	9	.34	11	5	.14
9	16	2	.13	14	5	.19	10	4	.12
10	18	4	.20	16	3	.13	10	5	.13
11	15	5	.22	14	3	.12	9.7	6	.17
12	16	4	.19	13	3	.12	16	11	1.2
13	15	4	.16	14	4	.17	39	26	4.4
14	15	4	.16	14	5	.19	16	10	.42
15	15	4	.19	14	5	.18	13	5	.20
16	16	5	.21	13	5	.18	13	4	.13
17	15	4	.18	13	5	.18	12	4	.12
18	14	4	.17	12	4	.15	11	4	.13
19	14	5	.20	12	4	.14	11	5	.14
20	14	6	.24	12	5	.17	10	4	.12
21	14	6	.24	12	5	.17	10	4	.10
22	15	5	.21	12	4	.14	9.9	3	.09
23	19	4	.19	13	4	.13	9.7	3	.09
24	16	3	.15	13	5	.17	9.7	4	.12
25	16	3	.12	12	7	.21	9.6	5	.13
26	15	3	.12	10	8	.24	28	63	18
27	15	3	.12	10	8	.24	18	20	1.0
28	15	3	.12	12	8	.28	11	17	.51
29	15	3	.12	---	---	---	20	21	2.1
30	15	3	.12	---	---	---	25	57	4.5
31	15	3	.12	---	---	---	12	27	.87
TOTAL	469	---	5.39	369	---	5.03	444.6	---	36.78

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR-- Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	10	19	.58	14	9	.34	13	5	.17
2	14	18	.73	13	8	.28	37	35	12
3	26	30	2.3	13	9	.30	29	13	1.3
4	15	27	1.1	13	11	.37	15	5	.21
5	11	19	.57	13	13	.46	16	5	.20
6	11	15	.43	13	12	.44	17	5	.22
7	17	14	.77	48	64	28	16	5	.22
8	17	11	.57	31	23	2.8	15	5	.21
9	12	10	.31	17	10	.46	23	10	.91
10	11	10	.31	15	10	.43	22	13	.86
11	12	11	.35	32	24	4.4	15	9	.37
12	12	10	.31	20	24	1.4	14	8	.33
13	11	6	.19	13	18	.65	17	8	.37
14	11	5	.16	47	94	68	18	8	.32
15	21	9	.99	45	31	6.3	20	12	.98
16	39	23	3.4	258	1070	3680	49	78	53
17	61	128	71	89	107	35	37	24	4.4
18	55	55	19	38	22	2.7	19	12	.57
19	45	97	14	25	6	.52	13	12	.39
20	28	38	3.1	21	5	.35	12	10	.31
21	19	16	.81	18	5	.27	11	9	.26
22	15	11	.42	20	5	.25	10	12	.32
23	13	10	.33	17	5	.23	11	16	.43
24	12	8	.27	16	6	.27	10	18	.48
25	11	8	.23	15	8	.31	10	18	.51
26	10	6	.18	14	8	.30	14	16	.59
27	68	274	256	14	7	.26	10	13	.32
28	57	46	11	14	5	.21	9.8	13	.35
29	24	16	1.1	15	5	.20	10	12	.33
30	17	11	.51	15	5	.21	9.5	11	.27
31	---	---	---	17	5	.20	---	---	---
TOTAL	685	---	391.02	953	---	3835.91	522.3	---	81.20

• Estimated

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR-- Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	9.3	10	.26	17	12	.54	27	10	.69
2	9.9	10	.28	17	12	.52	26	10	.68
3	47	67	33	16	12	.48	25	11	.69
4	67	89	40	23	17	1.3	23	21	1.2
5	38	22	2.8	22	17	1.2	22	29	1.7
6	116	632	986	20	9	.45	21	27	1.5
7	83	71	21	54	50	17	50	75	33
8	38	20	1.8	25	10	.86	43	28	5.2
9	23	20	1.3	44	53	12	27	11	.83
10	20	19	.95	35	19	1.8	26	11	.72
11	17	17	.76	20	11	.61	24	10	.64
12	16	16	.67	17	10	.46	41	28	5.6
13	15	15	.62	20	10	.54	33	22	1.9
14	15	17	.66	91	561	444	28	12	.87
15	17	18	.94	58	45	9.4	26	11	.77
16	20	17	.92	28	15	1.2	24	11	.73
17	16	13	.56	24	10	.62	172	567	1240
18	15	10	.38	27	12	.96	84	85	26
19	15	6	.25	44	41	11	42	23	2.8
20	15	7	.29	42	62	8.0	90	96	29
21	17	11	.47	28	45	3.5	141	282	216
22	17	10	.46	25	34	2.3	176	310	183
23	17	10	.45	80	316	240	108	128	43
24	19	10	.52	79	75	22	97	112	38
25	18	10	.50	39	20	2.2	64	41	7.8
26	18	9	.42	29	15	1.2	50	20	2.8
27	17	8	.39	25	13	.88	91	118	78
28	18	11	.52	125	513	675	53	36	6.1
29	17	12	.59	61	46	9.2	53	40	9.0
30	20	12	.62	35	16	1.5	48	31	5.1
31	19	12	.65	29	11	.81	---	---	---
TOTAL	809.2	---	1099.03	1199	---	1471.53	1735	---	1943.32
YEAR	12052.1		11442.78						

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM
OCT 1993							
07...	1819	219	3105	1840	37	43	48
07...	1920	600	6000	9720	24	32	38
APR 1994							
27...	1553	9.7	6500	170	20	29	37
MAY							
16...	1814	819	5450	12100	38	49	61
JUL							
06...	1915	1040	7050	20400	27	37	49
AUG							
28...	1638	679	4580	8390	22	29	36
28...	1709	699	4740	6940	35	44	44
SEP							
17...	1630	725	5770	11280	18	24	30
DATE		SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
OCT 1993							
07...	57	67	78	91	98	99.6	99.8
07...	47	56	65	74	82	92	99
APR 1994							
27...	47	56	63	73	77	83	92
MAY							
16...	80	84	93	98	99.6	99.8	100
JUL							
06...	62	73	82	94	99	99.6	99.7
AUG							
28...	46	56	69	86	95	98	99
28...	63	74	86	96	99	99	100
SEP							
17...	38	47	57	79	93	97	99

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
OCT 1993					
04...	1810	240	1310	849	41
06...	1547	497	1630	2190	89
APR 1994					
17...	1613	262	1600	1130	92
MAY					
16...	1530	367	5620	5570	82
16...	1558	818	6980	15420	85
JUL					
06...	2015	502	5190	7030	90
AUG					
13...	1700	26	364	26	98
16...	1900	254	2700	1850	77
SEP					
21...	1734	340	1020	3690	77

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km) west of Hormigueros, and 2.0 mi (3.2 km) downstream from Río Rosario.

DRAINAGE AREA.--120 mi² (311 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to Nov. 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	316	109	87	36	28	44	18	34	16	20	21	45
2	295	107	72	37	26	55	38	28	25	24	18	69
3	395	130	69	35	25	42	83	25	63	49	16	49
4	422	111	65	34	25	30	42	23	28	107	16	40
5	322	101	66	34	26	27	41	22	20	119	29	37
6	361	99	89	33	26	27	87	29	17	126	25	40
7	385	97	68	31	24	26	100	34	15	183	62	71
8	530	101	64	52	24	25	148	67	15	62	61	134
9	252	97	62	37	23	23	50	26	17	40	56	52
10	193	123	60	39	22	21	57	22	27	30	65	43
11	163	126	55	36	21	21	98	34	16	25	32	45
12	143	107	56	37	20	22	95	48	14	23	25	55
13	128	96	66	34	20	146	50	24	14	21	26	62
14	116	93	93	32	19	45	40	21	15	19	157	40
15	108	89	69	30	21	29	57	88	16	18	137	36
16	144	111	56	31	20	25	122	235	28	27	51	33
17	205	110	52	29	19	22	89	241	74	21	54	301
18	119	105	53	29	17	19	86	66	26	19	76	275
19	97	94	48	29	18	18	106	44	22	20	158	96
20	92	e95	62	25	19	16	64	35	21	18	185	345
21	103	e100	62	24	18	16	45	30	22	20	103	283
22	100	e100	47	25	18	16	36	27	21	20	65	480
23	89	e105	46	53	17	15	30	24	13	17	79	343
24	116	e110	43	70	19	15	26	22	13	16	158	216
25	106	e105	41	41	18	15	24	20	15	19	87	164
26	113	e86	41	32	18	14	23	18	19	35	62	123
27	146	e67	40	29	18	27	83	17	21	22	50	125
28	259	e75	40	32	20	18	247	16	39	20	146	117
29	221	e128	38	37	---	20	69	18	28	19	127	126
30	146	127	37	47	---	40	45	18	21	19	63	146
31	117	---	37	32	---	21	---	18	---	23	50	---
TOTAL	6302	3104	1784	1102	589	910	2099	1374	701	1201	2260	3991
MEAN	203	103	57.5	35.5	21.0	29.4	70.0	44.3	23.4	38.7	72.9	133
MAX	530	130	93	70	28	146	247	241	74	183	185	480
MIN	89	67	37	24	17	14	18	16	13	16	16	33
AC-FT	12500	6160	3540	2190	1170	1800	4160	2730	1390	2380	4480	7920
CFSM	1.69	.86	.48	.30	.18	.24	.58	.37	.19	.32	.61	1.11
IN.	1.95	.96	.55	.34	.18	.28	.65	.43	.22	.37	.70	1.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1994, BY WATER YEAR (WY)

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
MEAN	489	424	128	58.2	46.0	44.2	70.9	178	110	103	222	486										
MAX	1254	1518	422	110	96.1	244	316	636	504	240	757	2075										
(WY)	1986	1978	1976	1993	1993	1989	1989	1980	1979	1984	1988	1975										
MIN	97.5	42.7	15.4	13.8	13.9	10.6	16.1	12.7	9.23	26.4	42.3	95.4										
(WY)	1992	1992	1992	1973	1977	1977	1977	1977	1977	1976	1976	1991										

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1973 - 1994
ANNUAL TOTAL	53263	25417	
ANNUAL MEAN	146	69.6	199
HIGHEST ANNUAL MEAN			402
LOWEST ANNUAL MEAN			69.6
HIGHEST DAILY MEAN	1230	Sep 28	35000
LOWEST DAILY MEAN	26	Mar 23	5.0
ANNUAL SEVEN-DAY MINIMUM	29	Mar 20	5.5
INSTANTANEOUS PEAK FLOW		15	Jun 18 1977
INSTANTANEOUS PEAK STAGE		1240	Oct 7
INSTANTANEOUS LOW FLOW		17.64	Oct 7
ANNUAL RUNOFF (AC-FT)	105600	50410	144200
ANNUAL RUNOFF (CFSM)	1.22	.58	1.66
ANNUAL RUNOFF (INCHES)	16.51	7.88	22.54
10 PERCENT EXCEEDS	325	145	438
50 PERCENT EXCEEDS	92	40	75
90 PERCENT EXCEEDS	40	18	20

e Estimated

RIO GUANAJIBO BASIN

381

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993											
19...	1145	105	380	7.9	25.0	2.6	4.0	47	<10	390	300
DEC 23...	0755	--	--	--	--	2.0	--	--	14	--	--
MAR 1994											
03...	1030	45	428	7.4	24.0	2.0	7.6	90	<10	210	220
APR 15...	0835	44	474	7.7	24.0	--	3.4	40	--	K600	5300
JUN 23...	0905	13	367	7.7	27.0	2.8	2.9	36	13	220	710
AUG 26...	0905	69	399	7.5	27.5	1.5	4.4	55	10	2700	1600

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
19...	200	29	30	10	0.3	1.6	180	<0.5	13	11	<0.10
DEC 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
03...	--	--	--	--	--	--	170	--	--	--	--
APR 15...	170	26	21	11	0.2	1.	200	<0.5	15	9	<0.10
JUN 23...	--	--	--	--	--	--	160	--	--	--	--
AUG 26...	180	29	27	14	0.4	2.9	160	--	22	18	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
19...	30	233	65.9	14	0.20	0.110	<1	100	40	<1	6
DEC 23...	--	--	--	9	0.30	0.330	--	--	--	--	--
MAR 1994											
03...	--	--	--	11	0.30	0.360	--	--	--	--	--
APR 15...	31	205	24.4	1	0.40	0.290	<1	<100	50	<1	6
JUN 23...	--	--	--	9	<0.20	0.110	--	--	--	--	--
AUG 26...	33	242	45.1	16	0.80	0.550	--	--	--	--	--

K = non-ideal count

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993 19...	<10	560	<1	60	<0.10	<1	<1	<10	<0.010	<1	<0.02
DEC 23...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	<10	700	1	70	<0.10	<1	<1	<10	<0.010	<1	0.03
JUN 23...	--	--	--	--	--	--	--	--	--	--	--
AUG 26...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 23...	0905	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	
JUN 1994 23...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01	
DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	
JUN 1994 23...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01	

RIO YAGÜEZ BASIN

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagüez plaza.

DRAINAGE AREA.--6.7 mi² (17.3 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1993											
19...	0900	13	263	8.1	22.5	2.5	4.7	53	<10	4400	2500
DEC 22...	1245	--	--	--	--	1.0	--	--	<10	--	--
MAR 1994											
03...	0730	2.7	324	7.5	21.0	15	8.0	112	<10	300	2300
APR 14...	1125	1.8	325	7.9	25.0	--	5.4	64	--	300	410
JUN 23...	1320	1.5	318	8.0	27.5	1.0	7.3	91	<10	270	660
AUG 26...	0720	5.4	286	7.6	24.0	2.3	4.8	56	11	1700	2300

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
19...	130	34	12	9.7	0.4	1.9	120	0.6	7.0	8.0	<0.10
DEC 22...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
03...	--	--	--	--	--	--	140	--	--	--	--
APR 14...	100	30	16	9.1	0.5	2.6	150	<0.5	8.2	7.9	0.20
JUN 23...	--	--	--	--	--	--	140	--	--	--	--
AUG 26...	120	33	10	11	0.4	2.3	130	--	8.8	9.9	0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
19...	31	176	6.16	4	<0.20	0.050	<1	100	20	<1	<1
DEC 22...	--	--	--	4	<0.20	0.080	--	--	--	--	--
MAR 1994											
03...	--	--	--	27	0.20	0.110	--	--	--	--	--
APR 14...	29	231	1.16	11	0.20	0.060	<1	<100	40	<1	<1
JUN 23...	--	--	--	3	<0.20	0.050	--	--	--	--	--
AUG 26...	32	185	2.69	9	<0.20	0.040	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE ANASCO BASIN

50141500 LAGO GUAYO NEAR CASTANER, PR

LOCATION.--Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km) southwest of Lago Yahuecas, 2.6 mi (4.2 km) southwest of Lago Prieto, 2.1 mi (3.4 km) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA.--9.60 mi² (24.86 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1980 to January 1985, June 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the southwestern Puerto Rico project. The maximum storage is 17,400 ac-ft (21.5 hm³) for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60.00 ft (18.29 m) and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft³/s (855 m³/s) at a reservoir elevation of 70.00 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 1462.43 ft (445.75 m), May 27, 1980; minimum elevation recorded, 1415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1458.73 ft (444.62 m), Dec.3; minimum elevation recorded 1419.28 ft (432.96 m), May 28.

Capacity Table
(based on data from Puerto Rico Water Resources Authority)

Elevation, in feet	Contents, in acre-feet	Elevation, in feet	Contents, in acre-feet
1415	3,960	1460	13,550
1449	10,660	1465	15,000

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY OBSERVATION AT 24:00 VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1452.82	1455.65	1458.39	1457.54	1452.96	1449.48	1438.81	1429.14	1420.14	1424.55	1430.05	1433.92
2	1453.63	1455.60	1458.61	1457.71	1452.92	1449.48	1439.30	1429.27	1420.57	1424.70	1430.12	1433.48
3	1454.32	1455.56	1458.22	1457.89	1453.04	1448.51	1439.55	1429.42	1421.39	1424.86	1430.10	1433.67
4	1454.92	1455.89	1457.96	1458.03	1453.17	1448.10	1439.79	1429.54	1421.63	1425.03	1430.15	1433.83
5	1455.04	1456.28	1458.23	1457.43	1453.31	1448.24	1439.95	1429.67	1421.80	1425.18	1430.27	1433.97
6	1455.36	1454.99	1458.14	1457.57	1453.45	1448.36	1440.10	1429.83	1421.94	1425.50	1430.47	1434.08
7	1455.77	1454.84	1458.13	1457.11	1453.60	1447.14	1440.26	1429.95	1422.06	1426.18	1430.73	1434.27
8	1456.34	1454.81	1457.73	1456.90	1453.71	1445.75	1440.49	1430.07	1422.18	1427.30	1430.81	1434.41
9	1456.74	1455.09	1457.60	1456.90	1453.84	1444.67	1440.65	1430.19	1422.30	1427.49	1431.15	1432.50
10	1456.89	1455.42	1457.38	1456.66	1453.96	1444.50	1440.81	1430.21	1422.41	1427.66	1431.34	1430.68
11	A	1455.72	1457.15	1456.31	1454.07	1443.79	1440.26	1430.27	1422.54	1427.77	1431.46	1430.13
12	A	1455.99	1457.36	1455.56	1454.19	1442.84	1440.42	1430.58	1422.68	1427.89	1431.35	1428.62
13	A	1455.99	1457.30	1455.61	1454.28	1442.40	1440.18	1430.68	1422.76	1428.00	1431.43	1428.79
14	A	1455.98	1457.97	1454.92	1454.00	1442.63	1439.58	1426.72	1422.88	1428.08	1432.01	1428.90
15	1456.03	1455.60	1457.78	1453.33	1454.09	1442.26	1439.42	1423.97	1423.58	1428.17	1430.25	1428.99
16	1456.60	1455.97	1457.35	1453.49	1454.20	1441.32	1439.83	1424.04	1423.96	1428.33	1429.10	1429.07
17	1457.30	1456.32	1457.14	1453.44	1454.14	1440.45	1440.24	1424.04	1424.18	1428.42	1428.63	1429.50
18	1457.78	1456.42	1457.21	1453.60	1453.90	1440.21	1440.07	1424.04	1423.75	1428.54	1428.42	1429.69
19	1457.66	1456.62	1456.93	1453.11	1454.00	1440.13	1439.81	1424.07	1423.90	1428.65	1429.41	1429.20
20	1457.44	1456.89	1456.70	1453.25	1454.10	1440.24	1438.31	1424.07	1424.01	1428.74	1429.89	1429.21
21	1457.34	1457.14	1456.29	1453.39	1454.03	1439.09	1437.37	1424.07	1423.16	1428.83	1430.11	1429.52
22	1457.11	1457.33	1456.01	1452.74	1453.79	1439.16	1436.46	1423.23	1423.27	1428.91	1429.98	1429.90
23	1457.52	1457.56	1456.21	1453.13	1453.35	1439.28	1435.84	A	1423.19	1428.98	1430.71	1430.38
24	1457.93	1457.80	1456.41	1453.33	1452.76	1439.40	1433.81	A	1423.31	1429.07	1431.43	1432.85
25	1456.96	1458.03	1456.60	1453.42	1451.66	1439.52	1432.58	A	1423.51	1429.16	1432.08	1433.38
26	1455.81	1458.30	1456.79	1453.54	1451.27	1439.63	1432.16	1420.76	1423.82	1429.25	1433.30	1433.86
27	1455.79	1457.21	1456.98	1453.67	1450.92	1439.77	1432.37	1419.32	1423.98	1429.33	1433.73	1434.17
28	1455.86	1457.66	1457.15	1453.83	1450.03	1439.83	1431.85	1419.57	1424.16	1429.39	1434.06	1434.40
29	1455.17	1457.87	1457.33	1452.76	---	1439.22	1431.97	1419.77	1424.29	1429.45	1434.44	1434.46
30	1455.59	1458.15	1457.47	1452.88	---	1439.06	1429.05	1419.91	1424.43	1429.73	1433.98	1434.35
31	1455.98	---	1457.39	1453.02	---	1438.54	---	1420.03	---	1429.94	1434.15	---
MEAN	1456.14	1456.42	1457.35	1454.91	1453.31	1442.68	1437.71	1425.94	1422.93	1427.84	1431.13	1431.81
MAX	1457.93	1458.30	1458.61	1458.03	1454.28	1449.48	1440.81	1430.68	1424.43	1429.94	1434.44	1434.46
MIN	1452.82	1454.81	1456.01	1452.74	1450.03	1438.54	1429.05	1419.32	1420.14	1424.55	1428.42	1428.62

A No gage-height record

RIO GRANDE DE AÑASCO BASIN

387

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'26", long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares plaza.

DRAINAGE AREA.--26.3 mi² (68.1 km²) this does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

PERIOD OF RECORD.--Water years 1959-68, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993										
19...	1010	41	265	8.1	24.0	0.80	6.6	78	<10	K780
DEC										
09...	0910	32	308	7.9	21.0	2.8	5.8	64	<10	K160
FEB 1994										
10...	1105	23	317	7.9	23.0	1.0	3.5	40	<10	30
APR										
19...	0850	29	239	7.6	23.0	44	8.6	100	17	4500
JUN										
27...	1145	15	291	8.4	28.0	2.1	10.8	140	11	K8900
AUG										
23...	1115	18	291	7.7	28.0	5.5	9.4	106	14	200

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
19...	120	33	9.6	12	0.5	1.6	120	<0.5	21	10	0.20
DEC											
09...	--	--	--	--	--	--	120	--	--	--	--
FEB 1994											
10...	--	--	--	--	--	--	120	--	--	--	--
APR											
19...	110	29	8.8	11	0.5	2.0	94	<0.5	21	10	<0.10
JUN											
27...	--	--	--	--	--	--	110	--	--	--	--
AUG											
23...	120	33	9.3	12	0.5	2.2	110	--	23	9.9	<0.10

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
19...	33	192	21.3	9	0.20	0.030	<1	<100	<10	<1	<1
DEC											
09...	--	--	--	6	<0.20	0.030	--	--	--	--	--
FEB 1994											
10...	--	--	--	6	0.40	0.040	--	--	--	--	--
APR											
19...	27	165	12.8	50	0.30	0.020	<1	<100	20	<1	<1
JUN											
27...	--	--	--	4	<0.20	0.050	--	--	--	--	--
AUG											
23...	31	186	8.91	10	<0.20	0.040	--	--	--	--	--

K = non-ideal count

RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO GRANDE DE AÑASCO BASIN

389

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'05", long 67°03'05", Hydrologic Unit 21010003, on right bank, at downstream side of bridge on Highway 108, 0.4 mi (0.6 km) downstream from Quebrada La Zumbadora, 4.4 mi (7.1 km) northwest of Las Marías, 5.4 mi (8.7 km) southwest of San Sebastián.

DRAINAGE AREA.--94.3 mi² (244.2 km²), does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft (31.614 m) above mean sea level (Puerto Rico Department of Public Works bench mark). Previous to Oct. 30, 1975, at site 600 ft (180 m) upstream at same datum.

REMARKS.--Records fair. Transbasin diversion (except during floods) to Río Yauco basin for hydroelectric power and irrigation above Lago Guayo, Yahuecas, and Prieto, combined useable storage 17,300 acre-ft (21.3 km³). Limited storm runoff is contributed to basin by 3.5 mi² (9.1 km²) above Río Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	310	236	162	111	86	167	66	67	305	219	142	140
2	1260	231	144	111	85	184	88	64	270	125	82	143
3	723	256	139	108	85	94	189	120	820	108	70	114
4	1160	220	132	105	81	83	109	77	220	135	85	126
5	1060	212	246	101	84	76	86	69	111	118	129	301
6	906	280	368	102	82	76	77	86	84	98	136	113
7	637	205	161	100	81	86	83	198	69	615	731	1010
8	800	196	142	99	80	80	115	132	71	369	628	536
9	450	197	147	98	78	74	80	71	235	151	381	240
10	550	189	142	103	76	71	68	143	136	119	246	153
11	468	193	137	94	76	70	66	496	86	141	138	118
12	347	180	128	93	74	97	64	524	72	104	105	586
13	287	174	136	92	73	136	60	198	83	80	92	393
14	262	173	548	92	70	88	59	117	96	76	83	189
15	247	178	504	92	73	76	63	236	125	72	142	134
16	274	196	183	92	72	79	147	729	305	87	98	116
17	717	195	150	87	71	74	167	538	207	83	82	455
18	582	193	143	84	69	69	205	212	107	73	77	522
19	280	184	282	83	69	68	248	122	84	75	366	337
20	245	170	641	81	70	67	118	95	75	73	471	681
21	230	158	239	80	67	70	97	83	71	71	169	531
22	222	151	188	127	75	68	81	76	68	74	117	385
23	217	148	165	438	67	66	73	131	66	70	96	436
24	262	148	144	312	67	70	68	89	66	70	210	613
25	221	144	134	134	66	75	66	70	140	70	265	563
26	398	140	129	113	74	261	65	65	194	70	351	273
27	1090	139	125	134	71	167	78	75	85	71	335	896
28	650	137	121	102	90	75	211	98	88	69	1330	355
29	566	400	118	95	---	78	107	164	166	68	445	607
30	349	293	121	92	---	112	78	93	99	70	168	555
31	261	---	131	89	---	76	---	88	---	92	123	---
TOTAL	16031	5916	6250	3644	2112	2933	3082	5326	4604	3716	7893	11621
MEAN	517	197	202	118	75.4	94.6	103	172	153	120	255	387
MAX	1260	400	641	438	90	261	248	729	820	615	1330	1010
MIN	217	137	118	80	66	66	59	64	66	68	70	113
AC-FT	31800	11730	12400	7230	4190	5820	6110	10560	9130	7370	15660	23050
CFSM	5.48	2.09	2.14	1.25	.80	1.00	1.09	1.82	1.63	1.27	2.70	4.11
IN.	6.32	2.33	2.47	1.44	.83	1.16	1.22	2.10	1.82	1.47	3.11	4.58

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1994, BY WATER YEAR (WY)

MEAN	669	441	223	140	105	98.6	146	367	283	274	359	602
MAX	1467	746	482	215	161	271	313	1084	815	657	936	1422
(WY)	1993	1982	1966	1970	1981	1972	1971	1986	1979	1979	1979	1984
MIN	344	197	103	83.6	62.3	54.4	49.3	63.7	71.2	111	152	206
(WY)	1983	1994	1992	1965	1992	1965	1968	1967	1977	1990	1967	1983

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1963 - 1994
ANNUAL TOTAL	118943	73128	
ANNUAL MEAN	326	200	309
HIGHEST ANNUAL MEAN			460
LOWEST ANNUAL MEAN			189
HIGHEST DAILY MEAN	3840	May 30	19400
LOWEST DAILY MEAN	71	Apr 10	32
ANNUAL SEVEN-DAY MINIMUM	81	Apr 4	35
INSTANTANEOUS PEAK FLOW			7410
INSTANTANEOUS PEAK FLOW			8.16
INSTANTANEOUS LOW FLOW			58
ANNUAL RUNOFF (AC-FT)	235900	145000	223600
ANNUAL RUNOFF (CFSM)	3.46	2.12	3.27
ANNUAL RUNOFF (INCHES)	46.92	28.85	44.47
10 PERCENT EXCEEDS	675	481	652
50 PERCENT EXCEEDS	190	122	185
90 PERCENT EXCEEDS	111	70	73

RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)
OCT 1993											
22...	1010	221	240	7.9	25.0	5.7	5.2	K900	410	110	29
JAN 1994											
26...	0955	109	250	7.9	23.0	5.1	8.6	K680	340	110	28
APR											
21...	1250	100	235	8.0	28.0	1.0	8.0	K80	K73	110	28
JUL											
29...	1205	69	244	7.5	29.0	83	7.4	2100	390	100	26

DATE	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY WAT WH TOT FET FIELD (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)
OCT 1993											
22...	9.4	9.0	0.4	1.8	120	9.5	7.0	0.10	31	160	167
JAN 1994											
26...	8.6	11	0.5	2.1	100	12	7.4	<0.10	27	158	163
APR											
21...	9.2	9.4	0.4	2.1	90	12	8.3	<0.10	27	159	150
JUL											
29...	9.3	10	0.4	1.6	100	10	7.4	0.20	31	172	157

DATE	SOLIDS, DIS- SOLVED (TONS PER DAY)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	PHOS- PHORUS DIS- SOLVED (MG/L AS P)	PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P)	PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4)	ALUM- INUM, DIS- SOLVED (UG/L AS AL)	BARIUM, DIS- SOLVED (UG/L AS BA)
OCT 1993											
22...	99.6	1.10	0.010	0.01	0.30	0.040	0.030	0.030	0.09	20	34
JAN 1994											
26...	47.9	1.10	0.030	0.04	0.20	0.080	0.050	0.050	0.15	20	30
APR											
21...	42.8	0.920	0.030	0.04	0.30	0.040	0.030	0.030	0.09	20	35
JUL											
29...	32.0	0.290	0.050	0.06	<0.20	0.060	0.030	0.020	0.06	30	46

K = non-ideal count

RIO GRANDE DE AÑASCO BASIN

391

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--CONTINUED

(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	IRON, DIS- SOLVED (UG/L AS FE)	LITHIUM DIS- SOLVED (UG/L AS LI)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY DIS- SOLVED (UG/L AS HG)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, DIS- SOLVED (UG/L AS AG)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	VANA- DIUM, DIS- SOLVED (UG/L AS V)
OCT 1993 22...	<3	20	<4	20	<0.1	<10	1	<1	<1.0	140	<6
JAN 1994 26...	<3	25	5	24	--	10	3	<1	<1.0	130	<6
APR 21...	<3	12	<4	29	--	<10	1	<1	<1.0	140	7
JUL 29...	<3	23	<4	310	--	<10	1	<1	<1.0	130	12

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS	SEDI- MENT, SUS- PENDEED	SEDI- MENT, DIS- CHARGE, SUS- PENDEED	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN
OCT 1993 22...	1010	221	25	15.0	98
JUL 1994 29...	1205	69	184	34.3	98

RIO GRANDE DE AÑASCO BASIN

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 18°16'00", long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco plaza.

DRAINAGE AREA.--139 mi² (360 km²) this does not include 39.7 mi² (102.8 km²), flow is diverted to south coast.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TUR- BID- ITY (NTU)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP- TOCOCCI FECAL, (COLS. PER 100 ML)
OCT 1993											
19...	1220	E400	178	7.4	25.5	82	6.4	77	17	3100	K17000
DEC											
10...	0735	E300	240	7.6	24.0	14	5.6	65	<10	460	K150
MAR 1994											
02...	1420	216	210	7.3	25.0	54	7.6	91	13	3800	10000
APR											
21...	0840	128	225	7.6	25.0	3.0	8.2	99	<10	230	220
JUN											
29...	0855	161	215	7.5	25.0	54	7.0	84	16	4300	2000
AUG											
19...	1115	116	249	7.4	28.0	6.4	7.4	94	13	200	K150

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
OCT 1993											
19...	73	18	6.7	6.4	0.3	2.0	76	<0.5	7.3	6.3	<0.10
DEC											
10...	--	--	--	--	--	--	110	--	--	--	--
MAR 1994											
02...	--	--	--	--	--	--	85	--	--	--	--
APR											
21...	99	26	8.2	8.5	0.4	2.0	92	<0.5	11	7.2	<0.10
JUN											
29...	--	--	--	--	--	--	90	--	--	--	--
AUG											
19...	110	28	9.5	9.4	0.4	1.8	110	--	9.1	8.2	0.20

DATE	SILICA, DIS- SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L)	SOLIDS, DIS- SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	BORON, TOTAL RECOV- ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR)
OCT 1993											
19...	24	116	--	144	0.40	0.050	<1	100	<10	<1	2
DEC											
10...	--	--	--	24	<0.20	0.030	--	--	--	--	--
MAR 1994											
02...	--	--	--	94	0.40	0.110	--	--	--	--	--
APR											
21...	26	144	49.8	19	--	--	<1	<100	10	<1	<1
JUN											
29...	--	--	--	54	0.30	0.070	--	--	--	--	--
AUG											
19...	29	161	50.5	17	<0.20	0.040	--	--	--	--	--

E = estimate
K = non-ideal count

RIO GRANDE DE AÑASCO BASIN

393

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL RECOV- ERABLE (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993											
19...	20	3400	13	250	<0.10	<1	<1	20	<0.010	<1	<0.02
DEC											
10...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994											
02...	--	--	--	--	--	--	--	--	--	--	--
APR											
21...	<10	520	<1	80	<0.10	<1	<1	<10	<0.010	<1	<0.02
JUN											
29...	--	--	--	--	--	--	--	--	--	--	--
AUG											
19...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994										
29...	0855	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994									
29...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2,4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994									
29...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

THIS PAGE WAS LEFT BLANK
INTENTIONALLY

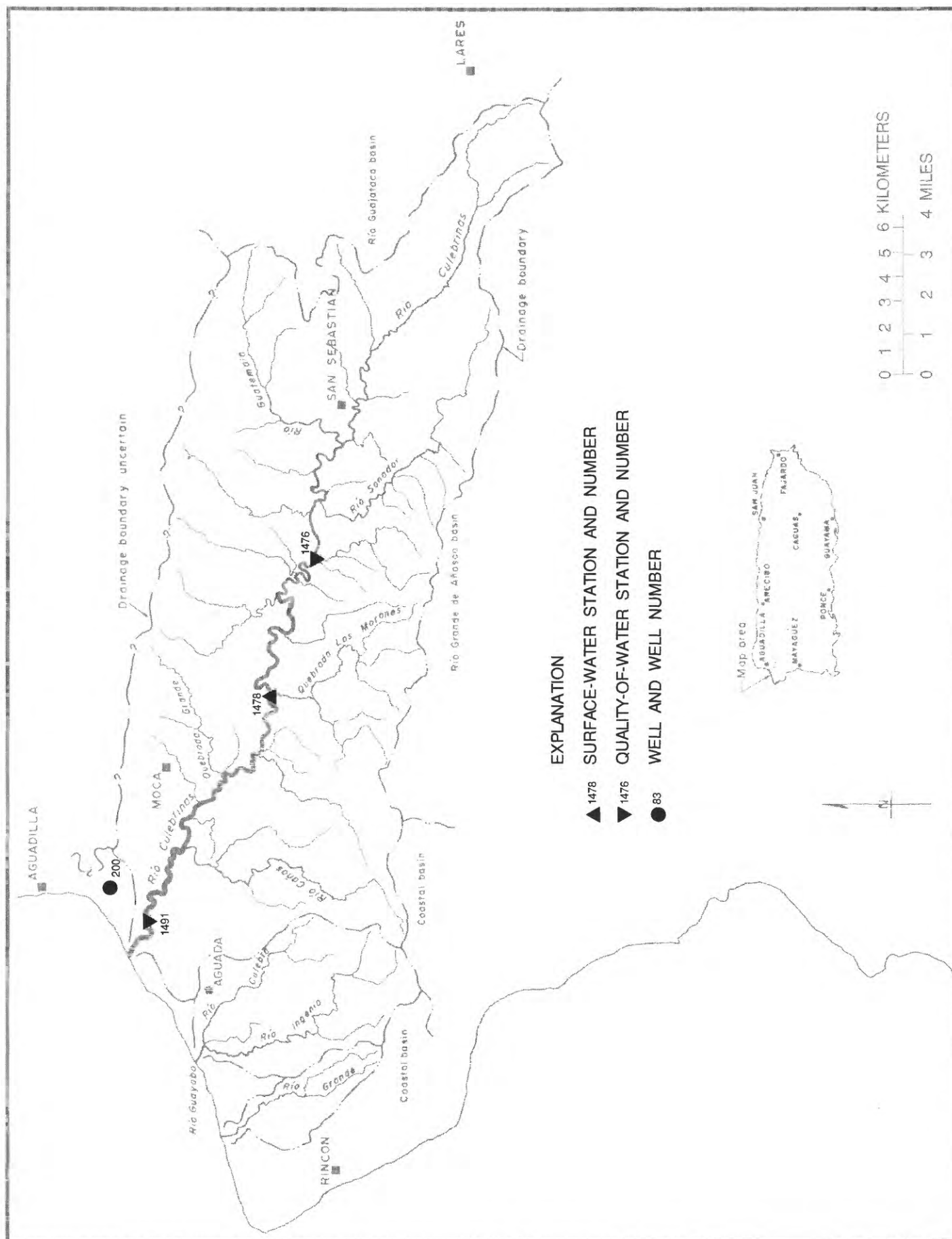


Figure 27.--Río Culebrinas basin.

RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA.--58.2 mi² (150.7 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML)	STREP-TOCOCCI, FECAL, (COLS. PER 100 ML)
OCT 1993										
21...	0945	157	275	7.8	25.0	4.8	7.1	84	<10	3900
DEC										
09...	1050	67	296	7.9	23.0	5.4	5.5	63	<10	4500
MAR 1994										K1100
07...	1100	47	263	7.0	24.5	25	8.4	100	<10	70000
APR										12000
22...	0825	27	268	7.5	24.5	1.0	7.2	86	15	370
JUN										K140
29...	1150	54	245	7.7	27.0	12	9.4	117	15	45000
AUG										650
18...	1155	53	285	7.7	27.5	3.6	8.4	105	<10	K1500

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
21...	110	38	4.8	9.3	0.4	2.2	120	<0.5	9.5	9.5	0.20
DEC											
09...	--	--	--	--	--	--	120	--	--	--	--
MAR 1994											
07...	--	--	--	--	--	--	97	--	--	--	--
APR											
22...	100	32	5.8	14	0.6	2.6	110	<0.5	12	14	0.10
JUN											
29...	--	--	--	--	--	--	97	--	--	--	--
AUG											
18...	120	40	5.2	13	0.5	2.6	120	--	12	11	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
21...	28	173	73.5	4	<0.20	0.050	<1	100	20	<1	<1
DEC											
09...	--	--	--	7	0.30	0.080	--	--	--	--	--
MAR 1994											
07...	--	--	--	33	0.50	0.150	--	--	--	--	--
APR											
22...	34	180	13.4	8	--	--	1	<100	40	<1	<1
JUN											
29...	--	--	--	8	0.30	0.080	--	--	--	--	--
AUG											
18...	28	184	26.5	8	0.30	0.070	--	--	--	--	--

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

[illegible]

RIO CULEBRINAS BASIN

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, at bridge on Highway 404, 0.3 mi (0.5 km) downstream from Quebrada Yagruma, and 2.8 mi (4.5 km) southeast of Moca.

DRAINAGE AREA.--71.2 mi² (184.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2380	193	112	82	52	71	33	50	71	95	270	87
2	429	204	106	82	51	62	31	41	77	78	122	197
3	295	227	103	80	51	54	35	38	337	81	71	145
4	5700	175	101	75	51	51	35	41	196	75	63	271
5	3260	216	192	71	50	48	33	38	813	69	82	368
6	1390	594	258	72	47	71	32	73	200	65	271	198
7	448	260	115	70	47	74	36	96	121	70	393	266
8	e900	189	102	70	46	59	31	50	96	128	908	1620
9	e490	195	95	73	46	52	29	63	83	76	364	550
10	e600	170	94	73	44	75	28	296	91	68	161	248
11	e520	159	89	68	44	95	28	274	229	82	171	162
12	e390	151	86	68	44	247	27	226	251	70	133	146
13	e310	146	87	67	43	179	27	152	133	63	111	185
14	e290	153	120	66	42	71	26	126	96	59	101	145
15	e270	197	142	67	43	56	28	688	306	56	108	124
16	e300	301	87	66	41	51	28	2210	228	91	116	113
17	e800	199	83	63	40	43	34	831	175	97	93	106
18	e640	170	82	64	39	39	31	282	129	63	86	120
19	e300	205	264	63	38	37	35	162	114	62	91	352
20	e270	155	684	62	46	36	33	119	104	58	600	245
21	243	143	250	60	40	34	41	96	99	55	540	3120
22	229	134	143	62	88	35	35	81	93	53	192	588
23	342	129	116	105	102	35	32	72	89	50	114	253
24	856	125	101	80	78	75	29	66	86	48	106	246
25	338	121	96	75	65	79	28	60	85	48	196	2500
26	835	117	94	62	141	39	27	55	86	48	109	270
27	496	114	89	60	175	42	33	54	82	48	223	286
28	361	110	85	57	70	32	120	104	93	46	232	237
29	260	157	85	56	---	30	120	185	127	46	138	960
30	235	173	84	56	---	34	102	113	145	51	103	2560
31	205	---	90	54	---	50	---	79	---	70	91	---
TOTAL	24382	5582	4235	2129	1664	1956	1187	6821	4835	2069	6359	16668
MEAN	787	186	137	68.7	59.4	63.1	39.6	220	161	66.7	205	556
MAX	5700	594	684	105	175	247	120	2210	813	128	908	3120
MIN	205	110	82	54	38	30	26	38	71	46	63	87
AC-FT	48360	11070	8400	4220	3300	3880	2350	13530	9590	4100	12610	33060
CFSM	11.0	2.61	1.92	.96	.83	.89	.56	3.09	2.26	.94	2.88	7.80
IN.	12.74	2.92	2.21	1.11	.87	1.02	.62	3.56	2.53	1.08	3.32	8.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1994, BY WATER YEAR (WY)

	MEAN	639	344	144	77.3	69.8	65.5	139	465	373	298	332	518
MAX	1086	799	424	151	243	319	621	2054	769	847	831	1350	
(WY)	1973	1982	1982	1971	1981	1981	1986	1986	1984	1979	1979	1978	
MIN	231	108	72.1	51.2	37.0	30.4	26.4	96.7	82.7	66.7	119	145	
(WY)	1968	1979	1992	1979	1992	1979	1970	1973	1974	1994	1970	1986	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1967 - 1994
ANNUAL TOTAL	96050	77887	
ANNUAL MEAN	263	213	291
HIGHEST ANNUAL MEAN			457
LOWEST ANNUAL MEAN			179
HIGHEST DAILY MEAN	5700	Oct 4	13300
LOWEST DAILY MEAN	40	Mar 24	19
ANNUAL SEVEN-DAY MINIMUM	44	Mar 18	20
INSTANTANEOUS PEAK FLOW			69000
INSTANTANEOUS PEAK STAGE			28.52
INSTANTANEOUS LOW FLOW			25
ANNUAL RUNOFF (AC-FT)	190500	154500	210600
ANNUAL RUNOFF (CFSM)	3.70	3.00	4.08
ANNUAL RUNOFF (INCHES)	50.18	40.69	55.48
10 PERCENT EXCEEDS	507	356	600
50 PERCENT EXCEEDS	123	93	135
90 PERCENT EXCEEDS	61	38	42

e Estimated

RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'03", long 67°09'40", at bridge on Highway 2, and 2.3 mi (3.7 km) northeast of Aguada plaza.

DRAINAGE AREA.--97.0 mi² (251.2 km²).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	DIS-CHARGE, INST. CUBIC FEET PER SECOND	SPE-CIFIC CON-DUCT-ANCE (US/CM)	PH WATER WHOLE FIELD (STAND-ARD UNITS)	TEMPER-ATURE WATER (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI (COLS. PER 100 ML)
OCT 1993											
21...	1150	407	312	7.7	27.0	37	2.5	31	12	K7500	6200
DEC											
10...	0930	150	340	7.7	23.5	12	4.2	48	<10	200	640
MAR 1994											
02...	1215	107	345	7.1	25.0	3.0	6.4	77	13	M600	100000
APR											
22...	1015	--	298	7.6	27.0	5.0	6.8	85	21	200	K190
JUN											
29...	1315	--	252	7.3	26.5	200	6.8	84	23	K8000	2600
AUG											
18...	1310	--	338	7.7	28.0	1.1	7.0	89	<10	430	310

DATE	HARD-NESS TOTAL (MG/L AS CaCO3)	CALCIUM DIS-SOLVED (MG/L AS Ca)	MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg)	SODIUM, DIS-SOLVED (MG/L AS Na)	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3)	SULFIDE TOTAL (MG/L AS S)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS Cl)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT 1993											
21...	130	45	5.4	11	0.4	2.4	150	<0.5	10	10	0.10
DEC											
10...	--	--	--	--	--	--	150	--	--	--	--
MAR 1994											
02...	--	--	--	--	--	--	130	--	--	--	--
APR											
22...	120	39	5.9	16	0.6	3.0	130	<0.5	9.1	15	0.10
JUN											
29...	--	--	--	--	--	--	98	--	--	--	--
AUG											
18...	150	50	6.3	12	0.4	2.6	150	--	11	13	0.20

DATE	SILICA, DIS-SOLVED (MG/L AS SiO2)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER DAY)	RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS-PHORUS TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS As)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS Ba)	BORON, TOTAL RECOV-ERABLE (UG/L AS B)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS Cd)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS Cr)
OCT 1993											
21...	27	201	221	82	0.60	0.050	<1	<100	10	<1	1
DEC											
10...	--	--	--	19	0.40	0.060	--	--	--	--	--
MAR 1994											
02...	--	--	--	24	0.80	0.110	--	--	--	--	--
APR											
22...	36	202	--	45	--	--	1	<100	40	<1	1
JUN											
29...	--	--	--	190	0.50	0.120	--	--	--	--	--
AUG											
18...	28	213	--	9	0.20	0.050	--	--	--	--	--

K = non-ideal count

RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	SELE- NIUM, TOTAL (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	PHENOLS TOTAL (UG/L)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)
OCT 1993 21...	10	2000	3	150	<0.10	<1	<1	10	<0.010	<1	<0.02
DEC 10...	--	--	--	--	--	--	--	--	--	--	--
MAR 1994 02...	--	--	--	--	--	--	--	--	--	--	--
APR 22...	<10	1100	3	130	<0.10	<1	<1	30	<0.010	1	0.06
JUN 29...	--	--	--	--	--	--	--	--	--	--	--
AUG 18...	--	--	--	--	--	--	--	--	--	--	--

PESTICIDE ANALYSES

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN, TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
JUN 1994 29...	1315	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.01	<0.010	<0.010

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
JUN 1994 29...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
JUN 1994 29...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01

50232000 QUEBRADA LA MINA NEAR ESPERANZA, VIEQUES, PR

LOCATION.--Lat 18°06'54", long 65°28'15", Hydrologic Unit 21010006, on left bank 300 ft (91 m), west from state road 996, 1.4 mi (2.2 km) south of Cerro Martineau, 0.7 mi (1.1 km) east-northeast of Colonia Puerto Real on road 201 and 1.2 mi (1.9 km) north of Esperanza.

DRAINAGE AREA.--0.68 mi² (1.76 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 9.20 ft or lower are considered zero flow.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum gage-height, 9.90 ft (3.018 m), June 29, 30; minimum, 8.76 ft (2.670 m), May 18-24.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 9.12 ft (2.780 m), Oct. 22,23; minimum, 8.76 ft (2.670 m), May 18-24.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.03	8.80	8.78	8.80	8.81	8.81	8.80	8.80	8.81	8.85	8.86	8.86
2	8.87	8.79	8.78	8.80	8.81	8.81	8.80	8.80	8.81	8.85	8.86	8.86
3	8.79	8.79	8.78	8.80	8.81	8.80	8.80	8.80	8.80	8.85	8.86	8.86
4	8.80	8.79	8.78	8.81	8.81	8.81	8.81	8.80	8.80	8.85	8.86	8.86
5	8.79	8.79	8.78	8.81	8.80	8.80	8.81	8.80	8.79	8.85	8.86	8.86
6	8.78	8.79	8.78	8.82	8.80	8.80	8.81	8.80	8.79	8.85	8.86	8.86
7	8.79	8.79	8.78	8.82	8.79	8.81	8.81	8.81	8.79	8.85	8.86	8.85
8	8.79	8.80	8.79	8.79	8.80	8.80	8.81	8.82	8.79	8.86	8.86	8.85
9	8.79	8.79	8.79	8.80	8.79	8.80	8.81	8.80	8.79	8.86	8.86	8.85
10	8.79	8.79	8.79	8.79	8.79	8.80	8.81	8.80	8.79	8.86	8.86	8.85
11	8.79	8.80	8.80	8.79	8.79	8.80	8.81	8.80	8.79	8.86	8.86	8.85
12	8.80	8.80	8.80	8.80	8.79	8.81	8.81	8.79	8.80	8.86	8.86	8.85
13	8.80	8.81	8.81	8.81	8.80	8.81	8.82	8.78	8.80	8.86	8.86	8.85
14	8.80	8.81	8.81	8.81	8.80	8.80	8.82	8.78	8.80	8.87	8.86	8.85
15	8.80	8.80	8.81	8.81	8.81	8.81	8.81	8.77	8.81	8.70	8.86	8.85
16	8.80	8.80	8.80	8.81	8.80	8.81	8.80	8.77	8.85	8.86	8.86	8.85
17	8.80	8.81	8.80	8.82	8.80	8.81	8.80	8.77	8.85	8.86	8.86	8.85
18	8.80	8.81	8.79	8.82	8.80	8.81	8.80	8.76	8.85	8.86	8.86	8.85
19	8.81	8.81	8.79	8.82	9.07	8.82	8.79	8.76	8.85	8.86	8.86	8.85
20	8.80	8.81	8.78	8.83	8.90	8.82	8.79	8.76	8.85	8.86	8.86	8.85
21	8.79	8.80	8.78	8.83	8.81	8.81	8.79	8.76	8.85	8.86	8.86	8.85
22	9.12	8.80	8.78	8.82	8.81	8.81	8.79	8.76	8.85	8.86	8.86	8.85
23	9.12	8.79	8.77	8.81	8.82	8.81	8.79	8.76	8.85	8.86	8.86	8.85
24	9.09	8.79	8.78	8.80	8.82	8.80	8.79	8.76	8.85	8.86	8.86	8.85
25	8.93	8.79	8.78	8.80	8.82	8.80	8.79	8.77	8.85	8.86	8.86	8.85
26	8.80	9.10	8.78	8.79	8.81	8.80	8.79	8.77	8.85	8.86	8.86	8.85
27	8.80	8.98	8.78	8.80	8.81	8.80	8.79	8.78	8.86	8.86	8.86	8.85
28	8.80	8.79	8.79	8.82	8.81	8.80	8.79	8.78	8.86	8.86	8.86	8.85
29	8.79	8.78	8.79	8.82	---	8.80	8.80	8.79	8.85	8.86	8.86	8.85
30	8.79	8.78	8.79	8.83	---	8.80	8.80	8.79	8.85	8.86	8.86	8.85
31	8.79	---	8.79	8.82	---	8.80	---	8.80	---	8.86	8.86	---
MEAN	8.84	8.81	8.79	8.81	8.82	8.81	8.80	8.78	8.82	8.85	8.86	8.85
MAX	9.12	9.10	8.81	8.83	9.07	8.82	8.82	8.82	8.86	8.87	8.86	8.86
MIN	8.78	8.78	8.77	8.79	8.79	8.80	8.79	8.76	8.79	8.70	8.86	8.85
MED	8.80	8.80	8.79	8.81	8.81	8.80	8.80	8.78	8.83	8.86	8.86	8.85

CAL YR 1993 MEAN 8.87 MAX 9.88 MIN 8.77 MED 8.85
WTR YR 1994 MEAN 8.82 MAX 9.12 MIN 8.70 MED 8.81

VIEQUES, PR

50233000 QUEBRADA PILON AT COLONIA PUERTO REAL, VIEQUES, PR

LOCATION.--Lat 18°06'37", long 65°28'51", Hydrologic Unit 21010006, on left bank, 1.2 mi (1.9 km), southeast of Cerro Sonadora, 1.2 mi (1.9 km) northwest of Esperanza, 0.4 mi (0.6 km) south of junction of Highways 895 and 201.

DRAINAGE AREA.--0.67 mi² (1.74 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 8.20 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 9.13 ft (2.783 m), July 23, 1993; minimum, 6.68 ft (2.036 m), Sept. 14, 15, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 7.17 ft (2.185 m), Oct. 1; minimum, 7.15 ft (2.179 m), Oct. 3-13.

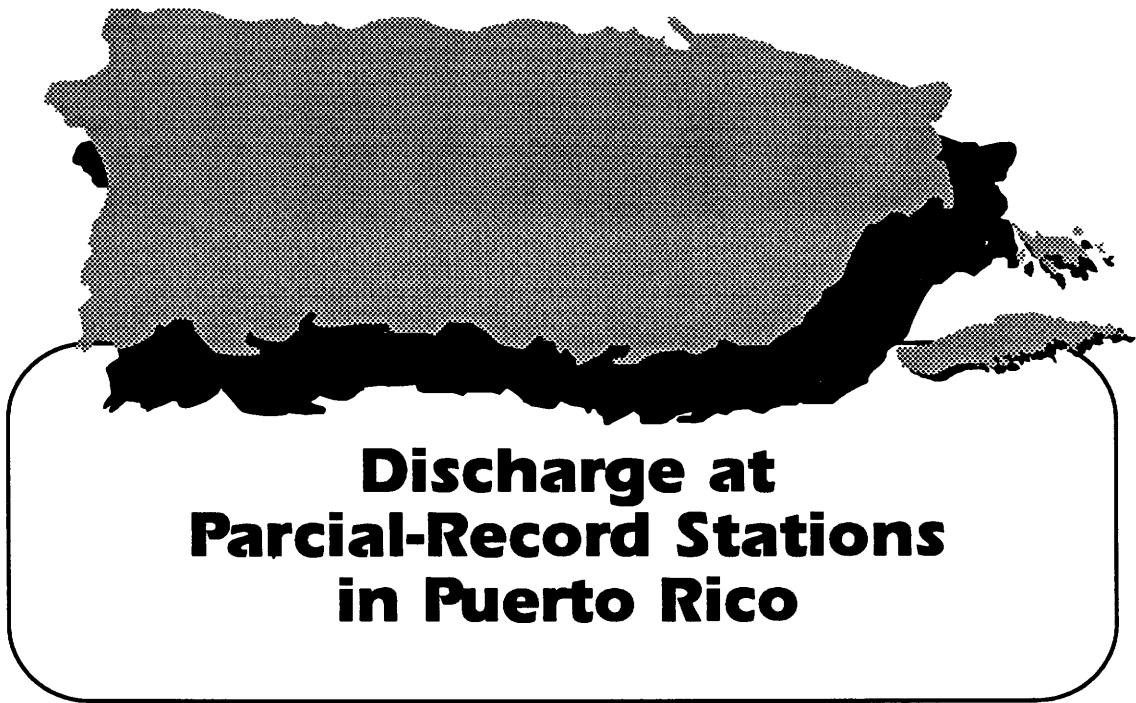
GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.17	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
2	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
3	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
4	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
5	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
6	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
7	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
8	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
9	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
10	7.15	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
11	7.15	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
12	7.15	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
13	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
14	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
15	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
16	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
17	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
18	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
19	7.16	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A
20	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
21	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
22	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
23	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
24	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
25	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
26	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	A
27	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	7.16
28	7.16	7.16	7.16	7.16	A	A	A	A	A	A	A	7.16
29	7.16	7.16	7.16	7.16	---	A	A	A	A	A	A	7.16
30	7.16	7.16	7.16	7.16	---	A	A	A	A	A	A	7.16
31	7.16	---	7.16	7.16	---	A	---	A	---	A	A	---
MEAN	7.16	7.16	7.16	7.16	7.16	---	---	---	---	---	---	7.16
MAX	7.17	7.16	7.16	7.16	7.16	---	---	---	---	---	---	7.16
MIN	7.15	7.16	7.16	7.16	7.16	---	---	---	---	---	---	7.16

CAL YR 1993 MEAN 7.24 MAX 7.75 MIN 6.80

WTR YR 1994 MEAN 7.16 MAX 7.17 MIN 7.15

A No gage-height record



DISCHARGE AT PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Low-flow partial-record stations

Measurements of streamflow in the areas covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of nearby stream when continuous records are available, will give a picture of the low-flow potentiality of stream.

Discharge measurements made at low-flow partial-records stations during water year 1994

PUBLICATION RECORD

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Guajataca basin						
50010520	Río Guajataca above sewage plant at Lares, PR	Lat 18°18'13", long 66°52'34", Hydrologic Unit 21010001, at barrio Pueblo, 0.5 mi (0.8 km) downstream from Highway 111, 1.5 mi (2.4 km) northwest from Cerro Palma, and 0.5 mi (0.8 km) north of Lares plaza.	5.40 (14.0)	2/23/94 4/21/94	1350 1320	3.34 (0.095) 3.01 (0.085)
Río Camuy basin						
50013000	Río Camuy near Lares, PR	Lat 18°17'49", long 66°49'31", Hydrologic Unit 21010001, at bridge on Highway 111, 1.1 mi (1.8 km) upstream from Río Criminales, 1.8 mi (2.9 km) downstream from Río Angeles and Río Piedras confluence, and 3.5 mi (5.6 km) east of Lares.	7.62 (19.7)	2/23/94 4/21/94	1120 1000	7.02 (0.199) 6.01 (0.170)
50014000	Río Criminales near Lares, PR	Lat 18°17'57", long 66°49'22", Hydrologic Unit 21010001, at bridge on Highway 111, 0.7 mi (1.1 km) upstream from Río Camuy, and 3.7 mi (5.6 km) east of Lares.	4.68 (12.1)	2/23/94 4/21/94	1220 1055	3.81 (0.108) 3.00 (0.085)
50014500	Río Camuy off Highway 129 near Lares, PR	Lat 18°19'01", long 66°49'38", Hydrologic Unit 21010002, at barrio Callejones, 1.1 mi (1.8 km) downstream from Río Criminales, 1.9 mi (3.1 km) east from Cueva Pajita, and 4.0 mi (6.4 km) northeast from Lares.	13.6 (35.2)	2/23/94 4/21/94	1025 0850	9.61 (0.272) 7.52 (0.213)
Río Grande de Arecibo basin						
50020150	Río Vacas near Adjuntas, PR	Lat 18°10'29", long 66°44'16", Hydrologic Unit 21010001, at barrio Garzas on Highway 522, 0.6 mi (1.0 km) upstream from Highway 135, 2.2 mi (3.5 km) north of Lago Garzas, and 1.2 mi (1.9 km) northwest of Adjuntas plaza.	3.10 (8.03)	3/02/94 5/04/94	1325 1320	4.67 (0.132) 2.06 (0.058)
50020295	Río Cidra at Adjuntas, PR	Lat 18°09'58", long 66°43'37", Hydrologic Unit 21010001, at Adjuntas, 0.1 mi (0.2 km) downstream from Highway 10, 1.9 mi (3.1 km) northeast of Lago Garzas, and 0.3 mi (0.5 km) northwest of Adjuntas plaza.	6.67 (17.3)	3/02/94 5/04/94	1230 1410	7.67 (0.217) 2.97 (0.084)
50020500	Río Grande de Arecibo near Adjuntas, PR	Lat 18°10'54", long 66°44'12", Hydrologic Unit 21010001, at bridge on Highway 135, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.	12.7 (32.9)	3/02/94 5/04/94	1245 1140	15.4 (0.436) 6.18 (0.175)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Grande de Arecibo basin						
50021000	Río Pellejas at Central Pellejas, PR	Lat 18°12'07", long 66°42'16", Hydrologic Unit 21010001, at barrio Pellejas near Highway 524, 0.1 mi (0.2 km) upstream from unnamed tributary and diversion tunnel, 1.0 mi (1.6 km) upstream from Lago Pellejas, and 2.9 mi (4.7 km) northeast of Adjuntas plaza.	5.46 (14.1)	3/03/94 5/05/94	0745 0730	5.31 (0.150) 3.25 (0.092)
50021800	Río Guaonica near Utuado, PR	Lat 18°15'18", long 66°43'47", Hydrologic Unit 21010001, at barrio Guaonica 50 ft (15 m) off Highway 603, 0.5 mi (0.8 km) upstream from Río Grande de Arecibo, 0.4 mi (0.6 km) downstream from Río Roncador, and 2.2 mi (3.5 km) southwest of Utuado plaza.	6.10 (15.8)	3/02/94 5/04/94	1005 1030	5.22 (0.148) 3.81 (0.108)
50021900	Quebrada Arenas near Utuado, PR	Lat 18°15'40", long 66°43'19", Hydrologic Unit 21010001, at barrio Arenas on Highway 10, 200 ft (61 m) upstream from Río Grande de Arecibo, and 1.5 mi (2.4 km) southwest of Utuado plaza.	2.59 (6.71)	3/02/94 5/04/94	1025 0915	1.49 (0.042) 1.12 (0.032)
50021905	Río Grande de Arecibo near Utuado, PR	Lat 18°15'46", long 66°43'15", Hydrologic Unit 21010001, at barrio Arenas, 200 ft (61 m) off Highway 10, 0.1 mi (0.2 km) downstream from Quebrada Arenas, 1.7 mi (2.7 km) upstream from Río Viví, and 1.4 (2.2 km) southwest from Utuado plaza.	39.9 (103)	3/02/94 5/04/94	0945 0945	10.8 (0.306) 7.45 (0.211)
50023000	Río Viví near Central Pellejas, PR	Lat 18°12'52", long 66°40'25", Hydrologic Unit 21010001, at barrio Viví Arriba on Highway 605, 2.0 mi (3.2 km) upstream from Lago Viví, 2.1 mi (3.4 km) northeast from Lago Pellejas, and 1.3 mi (2.1 km) northwest from Cerro Prieto.	5.66 (14.6)	3/03/94 5/05/94	1005 0910	4.27 (0.121) 2.31 (0.065)
50025165	Río Caricaboa at Jayuya, PR	Lat 18°13'10", long 66°35'12", Hydrologic Unit 21010001, at barrio Veguitas on Highway 144, 0.4 mi (0.6 km) upstream from Río Grande de Jayuya, 1.6 mi (2.6 km) northwest of Hacienda Gripinas, and 0.5 mi (0.8 km) east of Jayuya plaza.	4.22 (10.9)	3/03/94 5/05/94	1420 1315	1.33 (0.038) 0.56 (0.016)
50025175	Río Grande de Jayuya at Jayuya, PR	Lat 18°13'01", long 66°36'28", Hydrologic Unit 21010001, 1.5 mi (2.4 km) downstream from Río Caricaboa, 1.4 (2.2 km) upstream from Río Zamas, 1.0 mi (1.6 km) southwest from Jayuya plaza.	18.8 (48.7)	3/03/94 5/05/94	1330 1230	6.62 (0.187) 3.42 (0.097)
50025600	Río Jauca near Jayuya, PR	Lat 18°11'16", long 66°38'25", Hydrologic Unit 21010001, at barrio Jauca on Highway 140, 1.7 mi (2.7 km) southeast from Cerro Prieto, 4.6 mi (7.4 km) southeast from Lago Pellejas, and 3.8 mi (6.1 km) southwest of Jayuya.	4.44 (11.5)	3/03/94 5/05/94	1235 1140	4.17 (0.118) 1.89 (0.054)
50025900	Río Jauca at mouth near Jayuya, PR	Lat 18°13'08", long 66°38'35", Hydrologic Unit 21010001, at barrio Paso Palma on Highway 140, 0.2 mi (0.3 km) upstream from Río Grande de Jayuya, 2.5 mi (4.0 km) southeast from Lago Viví, and 2.0 mi (3.2 km) south of Lago Caonillas.	7.14 (18.5)	3/03/94 5/05/94	1130 1025	4.61 (0.130) 2.52 (0.071)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Grande de Arecibo basin						
50026050	Río Caonillas above Lago Caonillas, PR	Lat 18°14'26", long 66°38'22", Hydrologic Unit 21010001, at barrio Caonillas Arriba, 300 feet (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, and 3.3 mi (5.3 km) northwest of Jayuya plaza.	40.4 (105)	3/07/94	1340	14.4 (0.408)
				4/22/94	0700	12.8 (0.362)
50026250	Río Limón on Highway 613 near Tetuán, PR	Lat 18°16'57", long 66°35'52", Hydrologic Unit 21010001, at barrio Tetuán on Highway 613, 0.4 mi (0.6 km) upstream from Río Naranjito, 1.3 mi (2.1 km) northwest from Cerro Magoyo, and 1.3 (2.1 km) from Escuela Segunda Unidad de Mameyes.	5.55 (14.4)	3/07/94	1230	3.96 (0.112)
				4/22/94	0945	4.16 (0.118)
50026350	Río Limón above confluence with Río Yunes, PR	Lat 18°19'26", long 66°36'42", Hydrologic Unit 21010001, 3.4 mi (5.5 km) upstream from Lago Caonillas, 100 ft (30 m) upstream from Río Yunes, and 4.0 mi (6.4 km) southwest of Florida plaza.	16.7 (43.2)	3/07/94	1115	14.8 (0.419)
				4/22/94	1150	6.73 (0.190)
50026925	Río Yunes at Frontón, PR	Lat 18°18'11", long 66°34'09", Hydrologic Unit 21010001, at barrio Frontón, 0.9 mi (1.4 km) southwest from Escuela Segunda Unidad de Frontón, 2.9 mi (4.7 km) northeast from Cerro Magoyo, and 4.2 mi (6.8 km) of Florida Plaza.	9.63 (24.9)	3/07/94	0925	9.07 (0.257)
				4/22/94	1030	2.39 (0.068)
50026950	Río Yunes at mouth near Mameyes Abajo, PR	Lat 18°19'30", long 66°36'39", Hydrologic Unit 21010001, 3.4 mi (5.5 km) upstream from Lago Caonillas, 100 ft (30 m) upstream from Río Linon, 1.5 mi (2.4 km) northwest from Hacienda Piedra Gorda, and 4.0 mi (6.4 km) southwest of Florida plaza.	13.5 (35.0)	3/07/94	1035	11.3 (0.320)
				4/22/94	1120	3.86 (0.109)
50027900	Río Tanamá near Caguana, PR	Lat 18°15'42", long 66°46'55", Hydrologic Unit 21010001, near barrio Caguana, 4.4 mi (7.1 km) upstream from Highway 111, 2.5 mi (4.0 km) south of Parque Ceremonial Indígena Caguana, and 2.1 mi (3.4 km) southeast of comunidad Angeles.	10.8 (30.0)	2/25/94	0815	9.11 (0.258)
				4/18/94	1230	10.8 (0.306)
50028100	Río Tanamá above Observatorio de Arecibo, PR	Lat 18°20'22", long 66°45'25", Hydrologic Unit 21010002, at barrio Esperanza, 0.5 mi (0.8 km) southwest from the Observatorio de Arecibo, 3.2 mi (5.1 km) southeast of comunidad Bayaney, and 3.2 mi (5.1 km) northeast of Parque Ceremonial Indígena Caguana.	Indeter- minate	3/01/94	1735	27.0 (0.765)
				4/18/94	1040	26.9 (0.762)
50028200	Río Tanamá at Esperanza, PR	Lat 18°22'45", long 66°44'02", Hydrologic Unit 21010002, at barrio Esperanza, 0.9 mi (1.4 km) upstream from Highway 623, 200 ft upstream of AAA intake, 3.2 mi (5.1 km) west from Río Grande de Arecibo, and 6.7 mi (11 km) southwest from Arecibo plaza.	Indeter- minate	2/22/94	1135	37.7 (1.068)
				4/18/94	0930	42.8 (1.212)
Río Grande de Manatí basin						
50029800	Río Grande de Manatí near Barranquitas, PR	Lat 18°14'00", long 66°18'53", Hydrologic Unit 21010001, at barrio Barrancas, 300 ft (91 m) east of Highway 771, 2.4 mi (3.9 km) northeast from Cerro La Torrecilla, 0.7 mi (1.1 km) southwest of Cerro El Farallon, and 3.1 mi (5.0 km) from Barranquitas plaza.	3.81 (9.87)	3/09/94	1205	2.07 (0.059)
				4/19/94	1130	2.41 (0.068)

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Grande de Manatí basin						
50029900	Río Grande de Manatí near Corozal, PR	Lat 18°16'48", long 66°20'03", Hydrologic Unit 21010001, at barrio Negros on Highway 568, 0.2 mi (0.3 km) upstream from Highway 568, 1.7 mi (2.7 km) northeast of El Salto Grande, and 4.4 mi (7.1 km) southwest of Corozal plaza.	13.2 (34.2)	3/09/94 4/19/94	0945 1215	7.79 (0.221) 1.48 (0.042)
50030250	Río Botijas near Carro, PR	Lat 18°11'45", long 66°21'09", Hydrologic Unit 21010001, at barrio Palo Hincado, 200 ft (61 m) upstream from Highway 156, 100 ft (30 m) upstream from pumping station intake, 1.4 mi (2.2 km) southwest from Cerro La Torrecilla, and 3.1 mi (5.0 km) west of Barranquitas plaza.	3.82 (9.89)	3/10/94 4/20/94	1210 0740	1.00 (0.028) 1.04 (0.029)
50030300	Río Botijas near Botijas, PR	Lat 18°14'15", long 66°22'36", Hydrologic Unit 21010001, at barrio Botijas on Highway 548, 0.5 mi (0.8 km) upstream from Río Orocovis, 0.8 mi (1.3 km) north from Highway 156, and 1.1 mi (1.8 km) northeast of Orocovis plaza.	12.5 (32.4)	3/10/94 4/20/94	0955 0845	5.02 (0.142) 3.50 (0.099)
50030600	Río Orocovis at Orocovis, PR	Lat 18°13'58", long 66°23'23", Hydrologic Unit 21010001, at Orocovis, 0.5 mi (0.8 km) downstream from Quebrada Los Saltos, 1.3 mi (2.1 km) upstream from Río Botijas, and 0.3 mi (0.5 km) northeast of Orocovis plaza.	8.78 (22.7)	3/10/94 4/20/94	0900 0920	3.33 (0.094) 3.22 (0.091)
50031500	Río Sana Muerto near Orocovis, PR	Lat 18°16'14", long 66°24'47", Hydrologic Unit 21010001, at barrio Pesas, 2.5 mi (4.0 km) southwest from Cerro Magueyes, 2.5 mi (4.0 km) upstream from Río Grande de Manatí, and 4.0 mi (6.4 km) south of Morovis plaza.	3.68 (9.53)	3/10/94 4/21/94	0700 1215	1.29 (0.036) 0.99 (0.028)
50032050	Quebrada Riachuelo at mouth, PR	Lat 18°18'18", long 66°26'15". Hydrologic Unit 21010001, at barrio San Lorenzo, 50 ft (15 m) off Highway 567, 0.2 (0.3 km) upstream from Río Grande de Manatí, 1.0 mi (1.6 km) north from Cerro Avispa, and 2.5 mi (4.0 km) southwest of Morovis plaza.	1.69 (4.38)	3/09/94 4/19/94	0715 0845	0.80 (0.023) 0.70 (0.020)
50032100	Quebrada Grande near Morovis, PR	Lat 18°18'45", long 66°26'40", Hydrologic Unit 21010001, at barrio San Lorenzo, 50 ft (15 m) off Highway 567, 0.6 mi (1.0 km) upstream from Río Grande de Manatí, 2.3 mi (3.7 km) southeast from Ciales, and 2.6 (4.2 km) southwest from Morovis plaza.	2.63 (6.81)	3/09/94 4/19/94	0635 0910	0.87 (0.025) 0.75 (0.021)
50032400	Río Toro Negro on Highway 157 at Cacaos, PR	Lat 18°13'57", long 66°30'46", Hydrologic Unit 21010001, at barrio Cacaos on Highway 157, 0.5 mi (0.8 km) upstream from Quebrada Palma, 2.2 mi (3.5 km) northeast of Los Tres Picachos, and 5.3 mi (8.5 km) northeast of Jayuya plaza.	11.8 (30.6)	3/08/94 4/21/94	1040 0830	4.09 (0.116) 4.64 (0.131)
50032700	Río Matrullas at mouth, PR	Lat 18°15'29", long 66°30'04", Hydrologic Unit 21010001 at barrio Cacaos, 100 ft (30 m) upstream from Río Toro Negro, 0.8 mi (1.3 km) east from Cerro Vista Alegre, and 2.6 mi (4.2 km) south from Cerro Gordo.	3.66 (9.48)	3/08/94 4/21/94	1245 0940	1.60 (0.045) 0.94 (0.027)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Grande de Manatí basin						
50033000	Río Toro Negro near Ciales, PR	Lat 18°17'20", long 66°29'06", Hydrologic Unit 21010001, at barrio Toro Negro on Highway 615, 0.6 mi (1.0 km) south from Escuela Segunda Unidad de Pesas, 2.3 mi (3.7 km) north- west from Cerro Cedro, and 3.7 mi (6.0 km) southwest from Ciales plaza.	25.2 (65.3)	3/08/94 4/21/94	1400 1045	8.89 (0.252) 7.19 (0.204)
50033500	Río Bauta near Divisoria, PR	Lat 18°11'45", long 66°26'30", Hydrologic Unit 21010001, at barrio Bauta Abajo, 2.6 mi (4.2 km) southeast from Lago Matrullas, 1.9 mi (3.1 km) northeast from Cerro El Malo, 4.0 mi (6.4 km) southwest of Orocovis plaza.	8.60 (22.3)	2/28/94 4/06/94	0945 1320	5.01 (0.142) 2.30 (0.065)
50034500	Río Bauta at Pozas, PR	Lat 18°17'47", long 66°27'35", Hydrologic Unit 21010001, at barrio Pozas, 100 ft (30 m) upstream from Río Toro Negro, 4.0 mi (6.4 km) southwest of Morovis, and 2.9 mi (4.7 km) southeast of Ciales plaza.	28.2 (73.0)	3/08/94 4/06/94	1500 1030	6.55 (0.185) 10.2 (0.289)
50035600	Río Cialitos at Cialitos, PR	Lat 18°14'29", long 66°31'30", Hydrologic Unit 21010001, at barrio Cialitos, 0.3 mi (0.5 km) north of Highways 149 and 566 intersection, 2.0 mi (3.2 km) northeast from Los Tres Picachos, and 4.7 mi (7.6 km) northeast of Jayuya plaza.	3.18 (8.24)	3/08/94 4/18/94	0950 1015	1.67 (0.047) 1.62 (0.046)
50035700	Río Cialitos on Highway 614 near Ciales, PR	Lat 18°17'13", long 66°30'53", Hydrologic Unit 21010001, at barrio Pesas on Highway 614, 1.0 mi (1.6 km) southwest from Cerro Gordo, 1.8 mi (2.9 km) north of Cerro Vista Alegre, and 6.4 mi (10 km) southeast of Florida plaza.	6.66 (17.2)	3/08/94 4/18/94	0845 1050	3.60 (0.102) 3.03 (0.086)
50035950	Río Cialitos on Highway 649 at Ciales, PR	Lat 18°20'18", long 66°28'28", Hydrologic Unit 21010001, at Ciales, 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from Río Grande de Manatí, and 0.4 mi (0.6 km) west of Ciales plaza.	17.0 (44.0)	3/08/94 4/18/94	0630 0900	7.12 (0.202) 3.89 (0.110)
50037200	Río Grande de Manatí near Manatí, PR	Lat 18°24'52", long 66°29'37", Hydrologic Unit 21010002, at barrio Río Arriba Poniente, 100 ft (30 m) off Highway 149, 1.2 mi (1.9 km) southwest of comunidad Sabana Seca, 5.1 mi (8.2 km) upstream from Highway 2, and 1.0 mi (1.6 km) south of Manatí plaza.	Indeter- minate	3/28/93 4/18/94 6/10/94	1030 0805 0920	52.6 (1.490) 68.8 (1.948) 40.4 (1.144)
Río Cibuco basin						
50038295	Río de Los Negros at mouth at Corozal, PR	Lat 18°20'29", long 66°19'08", Hydrologic Unit 21010001, at Corozal, 100 ft (30 m) upstream from Río Corozal, 0.3 mi (0.5 km) upstream from Highway 159, and 0.1 mi (0.2 km) southwest of Corozal plaza.	4.04 (10.5)	3/04/94 4/11/94	0900 1330	1.36 (0.039) 1.54 (0.044)
50038302	Río Corozal above sewage plant at Corozal, PR	Lat 18°20'52", long 66°19'43", Hydrologic Unit 21010001, at barrio Cibuco, 0.8 mi (1.3 km) upstream from Río Cibuco, 0.7 mi (1.1 km) downstream from Highway 159, and 0.8 mi (1.3 km) northwest of Corozal plaza.	9.75 (25.2)	3/04/94 4/11/94	0640 1000	4.49 (0.127) 7.30 (0.207)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

409

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Cibuco basin						
50038317	Río Cibuco at Cibuco, PR	Lat 18°20'54", long 66°20'09", Hydrologic Unit 21010001, at barrio Cibuco, 0.3 mi (0.5 km) upstream from Río Corozal, 1.8 mi (2.9 km) southeast from Escuela Cienegueta, and 1.3 mi (2.1 km) northwest of Corozal plaza.	5.05 (13.1)	3/04/94 4/11/94	0955 1155	2.20 (0.062) 2.57 (0.073)
50038345	Río Mavilla on Highway 164 near Corozal, PR	Lat 18°19'07", long 66°17'21", Hydrologic Unit 21010001, at barrio Palmarejo on Highway 164, 0.6 mi (1.0 km) southwest from Escuela Segunda Unidad de Palmarejo, 1.3 mi (2.1 km) downstream from Quebrada La Jacinta, and 2.5 mi (4.0 km) southeast of Corozal plaza.	7.78 (20.2)	3/04/94 4/11/94	1050 1435	6.27 (0.178) 7.67 (0.217)
50038375	Río Mavilla on Highway 821 near Maricao, PR	Lat 18°22'11", long 66°20'02", Hydrologic Unit 21010002, at barrio Abras on Highway 821, 1.4 mi (2.2 km) upstream from Río Cibuco, 1.3 mi (2.1 km) southwest from Cerro Santa Bárbara, and 2.2 mi (3.5 km) northwest of Corozal plaza.	16.5 (42.7)	3/22/94 4/12/94	0630 0750	6.16 (0.174) 14.6 (0.413)
50038420	Río Cibuco on Highway 620 near Vega Alta, PR	Lat 18°24'08", long 66°20'39", Hydrologic Unit 21010001, at barrio Candelaria on Highway 620, 3.6 mi (5.8 km) downstream from Río Mavilla, 6.2 mi (10 km) northwest from Toa Alta, and 1.2 mi (1.9 km) southwest of Vega Alta plaza.	38.8 (100)	3/22/94 4/12/94	0735 0850	14.0 (0.396) 32.7 (0.926)
50038550	Río Unibón above sewage plant at Unibón, PR	Lat 18°20'00", long 66°22'18", Hydrologic Unit 21010001, at barrio Unibón, 0.7 mi (1.1 km) upstream from Río Las Carreras, 2.5 mi (4.0 km) northeast from Morovis, and 3.6 mi (5.8 km) southwest of Corozal plaza.	1.63 (4.22)	4/12/94	1525	0.57 (0.016)
50038590	Río Las Carreras at Unibón near Morovis, PR	Lat 18°19'36", long 66°22'47", Hydrologic Unit 21010001, at barrio Unibón, 1.3 mi (2.1 km) upstream from Highway 159, 2.8 mi (4.5 km) northeast of Cerro Quiros, and 1.9 mi (3.1 km) east of Morovis plaza.	2.65 (6.86)	3/22/94 4/12/94	1300 1440	0.57 (0.016) 1.88 (0.053)
50038650	Río Unibón off Highway 160 near Almirante Sur, PR	Lat 18°21'05", long 66°23'12", Hydrologic Unit 21010002, at barrio Almirante Sur, 0.4 mi (0.6 km) downstream from Quebrada Monte Llano, 1.9 mi (3.1 km) upstream from Río Morovis, and 2.2 mi (3.5 km) northeast of Morovis plaza.	7.52 (19.5)	3/22/94 4/12/94	1010 1210	0.54 (0.015) 3.13 (0.089)
50038718	Río Morovis above sewage plant near Morovis, PR	Lat 18°20'12", long 66°25'15", Hydrologic Unit 21010002, at barrio Morovis Norte, 0.3 mi (0.5 km) upstream of Highway 155, 3.1 mi (5.0 km) east of Ciales, and 1.0 mi (1.6 km) northwest of Morovis plaza.	2.72 (7.04)	3/22/94 4/12/94	1115 1305	2.92 (0.083) 1.84 (0.052)
50038750	Quebrada Grande de Morovis on Highway 634 near Morovis, PR	Lat 18°21'33", long 66°24'39", Hydrologic Unit 21010002, at barrio Franquez, 0.8 mi (1.3 km) upstream from Río Morovis, 4.1 mi (6.6 km) northeast from Ciales, and 2.2 mi (3.5 km) north of Morovis plaza.	7.41 (19.2)	3/21/94 4/12/94	1255 1400	0.05 (0.001) 0.08 (0.002)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
50038895	Río Indio on Highway 22 at Río Abajo, PR	Lat 18°25'47", long 66°22'55", Hydrologic Unit 21010002, at barrio Río Abajo on Highway 22, 1.2 mi (1.9 km) south from Highway 2, 7.2 mi (12 km) east of Manatí, and 3.6 mi (5.8 km) northwest of Vega Alta plaza.	Indeter- minate	4/21/94 4/12/94	1110 1105	5.92 (0.168) 10.8 (0.306)
		Río de La Plata basin				
50040500	Río de La Plata on Highway 738 near Cayey, PR	Lat 18°07'25", long 66°07'56", Hydrologic Unit 21010005, at barrio Monte Llano on Highway 738, 100 ft (30 m) upstream from pumping station intake, 0.5 mi (0.8 km) southwest of Central Cayey, and 2.6 mi (4.2 km) northeast of Cayey plaza.	13.4 (34.7)	3/01/94 4/26/94 6/03/94	0845 0920 0930	17.8 (0.504) 3.83 (0.108) 10.0 (0.283)
50040590	Río Guavate on Highway 52 near Cayey, PR	Lat 18°07'51", long 66°07'04", Hydrologic Unit 21010005, at barrio Vegas, 1.2 mi (1.9 km) upstream from Río de La Plata, 2.9 mi (4.7 km) southwest from Cerro Las Pinas, and 4.3 mi (6.9 km) southeast of Cidra plaza.	6.62 (17.1)	3/01/94 4/26/94 6/03/94	0700 0700 1050	6.31 (0.179) 1.84 (0.052) 1.46 (0.041)
50040700	Quebrada Beatriz on Highway 1 near Cayey, PR	Lat 18°08'30", long 66°06'57", Hydrologic Unit 21010005, at barrio Beatriz on Highway 1, 2.2 mi (3.5 km) upstream from Río de La Plata, 2.5 mi (4.0 km) southwest from Cerro Las Pinas, and 3.9 mi (6.3 km) southeast of Cidra plaza.	3.42 (8.86)	3/01/94 4/26/94 6/03/94	0802 1020 0850	2.30 (0.065) 0.80 (0.023) 0.52 (0.015)
50041010	Río de La Plata on Highway 171 near Cayey, PR	Lat 18°08'07", long 66°10'08", Hydrologic Unit 21010005, at barrio Rincon on Highway 171, 0.8 mi (1.3 km) northwest from Cerro La Guasima, 250 ft (76 m) upstream from Quebrada Santo Domingo, and 3.0 mi (4.8 km) southwest of Cidra plaza.	34.2 (88.6)	2/28/94 4/26/94 6/07/94	1130 1120 0810	0.44 (0.012) 0.43 (0.012) 14.9 (0.422)
50041020	Quebrada Santo Domingo at Cayey, PR	Lat 18°06'22", long 66°09'55", Hydrologic Unit 21010005, at Cayey on Highway 1, 3.2 mi (5.1 km) northeast from Cerro Planada, 1.7 mi (2.7 km) north- east from Monte El Gato, and 0.5 mi (0.8 km) southeast of Cayey plaza.	0.84 (2.18)	2/28/94 4/26/94 6/07/94	1035 0835 0920	0.33 (0.009) 0.17 (0.005) 0.10 (0.003)
50042800	Río Matón on Highway 14 at Matón Abajo, PR	Lat 18°08'29", long 66°12'40", Hydrologic Unit 21010005, at barrio Matón Abajo on Highway 14, 250 ft (76 m) upstream of Río de La Plata, 1.0 mi (1.6 km) south of Cerro Plana, and 4.1 mi (6.6 km) southwest of Cidra plaza.	6.63 (17.2)	2/28/94 4/14/94 6/07/94	0930 1350 1000	1.33 (0.038) 1.61 (0.046) 0.93 (0.026)
50043010	Quebrada Honda at mouth at Proyecto La Plata, PR	Lat 18°09'36", long 66°13'48", Hydrologic Unit 21010005, at barrio Plata, 100 ft (30 m) upstream from Río de La Plata, 1.3 mi (2.1 km) northwest from Cerro Plana, 0.9 mi (1.4 km) from Cerro Amoldadero, and 4.7 mi (7.6 km) southwest of Cidra plaza.	2.66 (6.89)	2/28/94 4/14/94 6/07/94	0840 1300 1110	0.39 (0.011) 0.63 (0.018) 0.28 (0.008)
50043197	Río Usabon on Highway 162 near Barranquitas, PR	Lat 18°09'41", long 66°18'26", Hydrologic Unit 21010005, at barrio Helechal on Highway 162, 2.1 mi (3.4 km) northeast from Cerro Pulguillas, 3.0 mi (4.8 km) northwest from Aibonito, and 1.8 mi (2.9 km) south of Barranquitas plaza.	8.56 (22.2)	3/23/94 4/07/94 6/02/94	1130 1145 1230	1.45 (0.041) 2.98 (0.084) 0.76 (0.022)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río de La Plata basin						
50043450	Río Aibonito at Llanos near Aibonito, PR	Lat 18°09'19", long 66°17'07", Hydrologic Unit 21010005, at barrio Llanos, 2.1 mi (3.4 km) southeast from Cañon de San Cristobal, 2.7 mi (4.3 km) southeast from Barranquitas, and 1.5 mi (2.4 km) northwest of Aibonito plaza.	6.48 (16.8)	3/23/94	1250	2.05 (0.058)
				4/07/94	1040	2.46 (0.070)
				6/02/94	1130	2.23 (0.063)
50043475	Río Barranquitas at Barranquitas, PR	Lat 18°11'19", long 66°18'15", Hydrologic Unit 21010005, at Barranquitas, 0.1 mi (0.2 km) upstream from Highway 156, 2.1 mi (3.4 km) southeast from Cerro La Torrecilla, 1.6 mi (2.6 km) northwest from Cañon de San Cristobal, and 0.2 mi (0.3 km) east of Barranquitas.	3.75 (9.71)	3/23/94	1350	1.36 (0.038)
				4/07/94	1310	1.27 (0.036)
				6/02/94	1335	1.02 (0.029)
50043575	Río Hondo on Highway 776 at Río Hondo, PR	Lat 18°13'18", long 66°15'07", Hydrologic Unit 21010005, at barrio Río Hondo on Highway 776, 0.4 mi (0.6 km) north of Escuela Segunda Unidad de Río Hondo, 4.3 mi (6.9 km) north- east of Barranquitas, and 4.4 mi (7.1 km) northeast of Cañon de San Cristobal.	9.07 (23.5)	3/25/94	0740	3.63 (0.103)
				4/08/94	0730	3.63 (0.103)
				6/01/94	1320	3.01 (0.085)
50043850	Río Arroyata on Highway 171 at Cidra, PR	Lat 18°10'16", long 66°09'44", Hydrologic Unit 21010005, at barrio Sud on Highway 171, 0.8 mi (1.3 km) southwest from Lago Cidra, 2.8 mi (4.5 km) northeast from Cerro Gordo, and 0.5 mi (0.8 km) south of Cidra plaza.	0.70 (1.81)	3/23/94	0950	0.17 (0.005)
				4/07/94	0940	0.12 (0.003)
				6/02/94	0935	0.07 (0.002)
50043950	Río Arroyata on Highway 775 near Cidra, PR	Lat 18°12'04", long 66°12'34", Hydrologic Unit 21010004, at barrio Vega Redonda on Highway 775, 1.5 mi (2.4 km) of Cerro Almirante, 1.6 mi (2.6 km) north of Cerro Viento Caliente, and 1.8 mi (2.9 km) southeast of Comerío plaza.	9.42 (24.4)	3/23/94	0850	2.75 (0.078)
				4/07/94	0840	2.38 (0.067)
				6/02/94	0840	1.04 (0.029)
50043998	Río Arroyata at mouth near Comerío, PR	Lat 18°14'26", long 66°12'32", Hydrologic Unit 21010005, at barrio Naranjo on Highway 156, 150 ft (46 m) upstream from Río de La Plata, 1.6 mi (2.6 km) southwest from Cerro La Tiza, 1.8 mi (2.9 km) northeast of Comerío plaza.	16.2 (42.0)	3/23/94	0750	4.50 (0.127)
				4/07/94	0745	5.11 (0.145)
				6/02/94	0745	1.65 (0.047)
50044300	Río Cuesta Arriba on Highway 816 at Nuevo, PR	Lat 18°17'56", long 66°12'24", Hydrologic Unit 21010005, at barrio Nuevo on Highway 816, 0.3 mi (0.5 km) upstream from Río de La Plata, 1.3 mi (2.1 km) northeast of Cerro Avispa, and 2.6 mi (4.2 km) southeast of Naranjito plaza.	5.51 (14.3)	3/25/94	0920	1.59 (0.045)
				4/08/94	0845	1.71 (0.048)
				6/01/94	1110	1.24 (0.035)
50044775	Río Guadiana above sewage plant at Naranjito, PR	Lat 18°18'08", long 66°14'18", Hydrologic Unit 21010005, at barrio Guadiana, 0.2 mi (0.3 km) upstream from Quebrada Anones, 1.7 mi (2.7 km) from Cerro Avispa, and 0.6 mi (1.0 km) east of Naranjito plaza.	5.42 (14.2)	3/24/94	1155	2.03 (0.057)
				4/13/94	1325	3.61 (0.102)
				6/01/94	0850	1.09 (0.031)
50044975	Río Canas at Achioté near Naranjito, PR	Lat 18°19'21", long 66°15'14", Hydrologic Unit 21010005, at barrio Achioté, 1.7 mi (2.7 km) upstream from Lago La Plata, 1.5 mi (2.4 km) northwest from Naranjito plaza, and 4.5 mi (7.2 km) southeast of Corozal plaza.	3.14 (8.13)	3/24/94	0945	0.70 (0.020)
				4/13/94	1135	1.14 (0.032)
				6/01/94	0755	0.46 (0.013)

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
50045100	Quebrada Cruz on Highway 824 near Toa Alta, PR	Lat 18°21'26", long 66°14'50", Hydrologic Unit 21010005, at barrio Quebrada Cruz on Highway 824, 0.3 mi (0.5 km) upstream from Río de La Plata, 1.1 mi (1.8 km) northwest from Lago La Plata spillway, and 3.7 mi (6.0 km) north of Naranjito plaza.	2.13 (5.52)	3/24/94	0640	0.38 (0.011)
				4/13/94	0715	0.66 (0.019)
50045400	Río Bucarabones near Toa Alta, PR	Lat 18°21'49", long 66°12'54", Hydrologic unit 21010005, at barrio Ortiz, 4.7 mi (7.6 km) northeast from Naranjito, 3.1 mi (5.0 km) northwest from Cerro Gordo Arriba, and 2.8 mi (4.5 km) southeast of Toa Alta plaza.	1.23 (3.19)	3/24/94	0740	0.75 (0.021)
				4/13/94	0810	0.88 (0.025)
50045800	Río Lajas at Toa Alta, PR	Lat 18°23'39", long 66°15'16", Hydrologic Unit 21010005, at Toa Alta on Highway 165, 0.2 mi (0.3 km) upstream from Río de La Plata, 1.8 mi (2.9 km) downstream of Quebrada Arenas, and 0.3 mi (0.5 km) northwest of Toa Alta plaza.	8.60 (22.3)	3/24/94	0845	1.50 (0.042)
				4/13/94	0905	2.32 (0.066)
Río Bayamón basin						
50047475	Quebrada Cerro Gordo at La Aldea at Bayamón, PR	Lat 18°22'38", long 66°10'31", Hydrologic Unit 21010005, at barrio Cerro Gordo on Highway 840, 1.2 mi (1.9 km) upstream of Río Hondo, 4.9 mi (7.9 km), southeast from Toa Alta, and 2.0 mi (3.2 km) southwest of Bayamón plaza.	2.15 (5.57)	3/03/94	1200	2.21 (0.062)
				4/25/94	0955	0.63 (0.018)
50047520	Río Hondo II at Sabana Seca, PR	Lat 18°25'24", long 66°11'07" Hydrologic Unit 21010005, at barrio Sabana Seca, 1.2 mi (1.9 km) northwest from Puerto Rico National Cemetery, 4.7 mi (7.6 km) northeast of Toa Alta, and 2.5 mi (4.0 km) northwest of Bayamón plaza.	2.59 (6.71)	3/04/94	1235	0.78 (0.022)
				4/25/94	0900	0.47 (0.013)
50047598	Quebrada Vicente at mouth, PR	Lat 18°14'36", long 66°08'41', Hydrologic Unit 21010005, at barrio Bayamóncito off Highway 156, 100 ft (30 m) upstream from Río Bayamón, 1.2 mi (1.9 km) northeast from Cerro Santa Bárbara, and 4.6 mi (7.4 km) northeast of Cidra plaza.	2.21 (5.72)	3/01/94	1100	2.33 (0.066)
				5/02/94	1010	0.93 (0.026)
				6/09/94	1145	0.72 (0.020)
50047600	Río Bayamón near Aguas Buenas, PR	Lat 18°14'39", long 66°08'39", Hydrologic Unit 21010005, at barrio Bayamóncito on Highway 156, 1.3 mi (2.1 km) southwest from Cerro Santa Bárbara, 2.7 mi (4.3 km) east from Cerro La Tiza, and 4.7 mi (7.6 km) northeast of Cidra plaza.	10.2 (26.4)	3/01/94	1035	18.8 (0.532)
				5/02/94	1045	19.0 (0.538)
				6/09/94	1220	7.58 (0.215)
50047750	Quebrada Grande near Aguas Buenas, PR	Lat 18°16'02", long 66°08'33", Hydrologic Unit 21010005, at barrio Juan Asencio, 0.2 mi (0.3 km) upstream from Río Bayamón, 0.7 mi (1.1 km) southeast from Cerro Mula, 1.0 mi (1.6 km) southwest from Cerro del Chicharo, and 2.6 mi (4.2 km) northwest of Aguas Buenas plaza.	4.08 (10.6)	3/02/94	1015	4.62 (0.131)
				5/02/94	0905	2.24 (0.063)
				6/09/94	1015	1.58 (0.045)

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

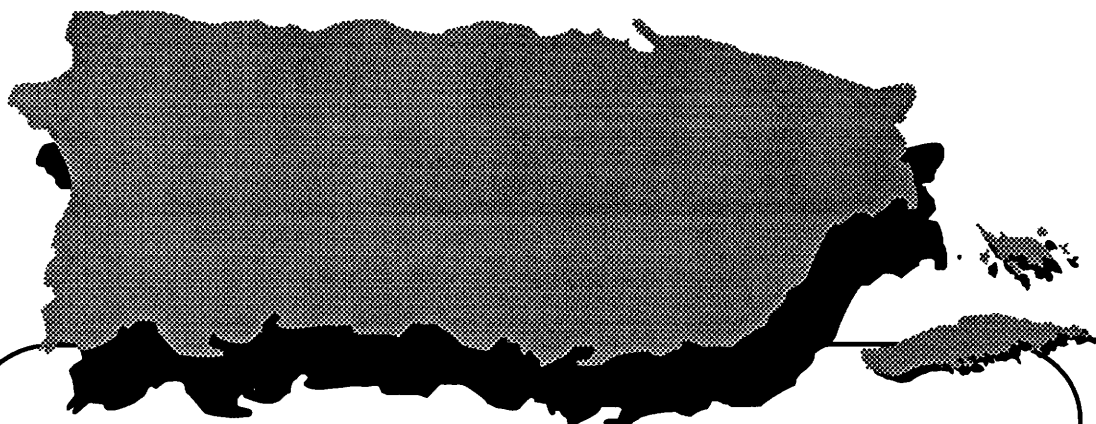
413

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Bayamón basin						
50047810	Quebrada Sonadora at Sonadora, PR	Lat 18°17'47", long 66°07'58", Hydrologic Unit 21010005, at barrio Sonadora, 0.7 mi (1.1 km) upstream from Río Bayamón, 1.4 mi (2.2 km) northeast from Cerro La Peña, 1.2 mi (1.9 km) north from Cerro del Chicharo, and 3.2 mi (5.1 km) northwest of Aguas Buenas plaza.	2.60 (6.73)	3/03/94	0650	1.67 (0.047)
				4/15/94	0730	2.42 (0.068)
				6/09/94	0925	1.07 (0.030)
50047840	Quebrada Santa Olaya on Highway 174 near Bayamón, PR	Lat 18°19'46", long 66°08'35", Hydrologic Unit 21010005, at barrio Guaraguao Abajo on Highway 174, 0.1 mi (0.2 km) upstream from Río Bayamón, 1.2 mi (1.9 km) northeast of Cerro de Vergara, and 2.9 mi (4.7 km) southwest of Guaynabo plaza.	4.10 (10.6)	3/02/94	0915	1.69 (0.048)
				4/15/94	0830	1.85 (0.052)
				6/09/94	0840	0.93 (0.026)
50047860	Río Minillas on Highway 174 near Minillas, PR	Lat 18°21'34", long 66°08'38", Hydrologic Unit 21010005, at barrio Minillas on Highway 174, 0.1 mi (0.2 km) upstream from Río Bayamón, 2.1 mi (3.4 km) northeast from Cerro Gordo Arriba, and 2.9 mi (4.7 km) southeast of Bayamón plaza.	4.80 (12.4)	3/02/94	1150	8.51 (0.241)
				4/15/94	1005	3.77 (0.107)
				6/08/94	0905	1.36 (0.038)
50047870	Río Bayamón near Minillas, PR	Lat 18°21'53", long 66°08'30", Hydrologic Unit 21010005, at barrio Minillas, 1.3 mi (2.1 km) upstream from Río Guaynabo, 2.4 mi (3.9 km) northeast from Cerro Gordo Arriba, and 2.6 mi (4.2 km) southeast of Bayamón plaza.	40.8 (106)	3/02/94	1225	20.6 (0.583)
				4/15/94	1050	14.6 (0.413)
				6/08/94	0950	6.27 (0.178)
50047895	Río Guaynabo at Highway 836 near Guaynabo, PR	Lat 18°20'05", long 66°06'10", Hydrologic Unit 21010005, at barrio Mamey on Highway 836, 0.6 mi (1.0 km) southwest of Cerro Magueyes, 3.7 mi (6.0 km) from Cerro Marquesa, and 1.8 mi (2.9 km) southeast of Guaynabo plaza.	8.44 (21.9)	3/03/94	0905	4.68 (0.132)
				4/25/94	1135	2.74 (0.078)
				6/08/94	1340	1.56 (0.044)
50047953	Río Guaynabo below Guaynabo, PR	Lat 18°22'00", long 66°07'09", Hydrologic Unit 21010005, at barrio Santa Rosa, 0.4 mi (0.6 km) upstream from Quebrada Frailes, 3.1 mi (5.0 km) north- west from Cerro Magueyes, and 0.7 mi (1.1 km) northwest from Guaynabo plaza.	12.8 (33.2)	3/03/94	0950	7.68 (0.217)
				4/25/94	1225	4.55 (0.129)
				6/08/94	1240	2.85 (0.081)
50047970	Quebrada Frailes on Highway 169 at Guaynabo, PR	Lat 18°22'07", long 66°06'42", Hydrologic Unit 21010005, at Guaynabo on Highway 169, 1.9 mi (3.1 km) northwest from Cerro Magueyes, 1.2 mi (1.9 km) upstream from Río Guaynabo, and 0.6 mi (1.0 km) north from Guaynabo plaza.	3.48 (9.01)	3/03/94	1025	3.00 (0.085)
				4/25/94	1315	6.30 (0.178)
				6/08/94	1140	2.39 (0.068)
Río Piedras basin						
50048750	Quebrada Las Curias Tributary near Caimito, PR	Lat 18°20'19", long 66°03'33", Hydrologic Unit 21010005, at barrio Caimito, 0.7 mi (1.1 km) upstream from Quebrada Las Curias, 0.7 mi (1.1 km) south- west from Aljibe Las Curias, and 2.9 mi (4.7 km) northwest of Lago Carraizo spillway.	1.73 (4.48)	3/04/94	0815	0.84 (0.024)
				5/03/94	1100	0.43 (0.012)
50048760	Quebrada Los Guanós near Río Piedras, PR	Lat 18°21'24", long 66°03'20", Hydrologic Unit 21010005, at barrio Cupey, 0.8 mi (1.3 km) upstream from Río Piedras, 3.2 mi (5.1 km) northwest from Lago Carraizo spillway, and 3.1 mi (5.0 km) west of Trujillo Alto plaza.	0.76 (1.97)	3/04/94	0905	0.59 (0.017)
				5/03/94	1010	0.41 (0.012)

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

STATION NUMBER	STATION NAME	LOCATION AND BASIN	DRAINAGE AREA mi ² (km ²)	DATE	TIME	STREAM- FLOW ft ³ /s (m ³ /s)
Río Culebrinas basin						
50146700	Río Culebrinas at Perchas No. 1, PR	Lat 18°18'09", long 66°56'49", Hydrologic Unit 21010003, at barrio Perchas No. 1, 1.4 mi (2.2 km) upstream of Quebrada Lajas, 1.2 mi (1.9 km) down- stream from Quebrada Grande, and 3.8 mi (6.1 km) southeast of San Sebastian plaza.	6.82 (17.7)	2/24/94	0700	9.97 (0.282)
				4/20/94	1410	6.47 (0.183)
50147000	Río Culebrinas at San Sebastian, PR	Lat 18°20'08", long 66°59'46", Hydrologic Unit 21010003, at San Sebastian on Highway 109, 0.9 mi (1.4 km) upstream from Río Guatemala, 200 ft (61 m) upstream from sewage plant discharge point, and 0.4 mi (0.6 km) southwest from San Sebastian plaza.	16.7 (43.2)	2/24/94	0820	16.0 (0.453)
				4/20/94	1140	9.89 (0.280)
50147200	Río Guatemala at San Sebastian, PR	Lat 18°20'42', long 67°00'00", Hydrologic Unit 21010003, at San Sebastian on Highway 111, 1.2 mi (1.9 km) upstream from Río Culebrinas, 0.9 mi (1.4 km) southeast of Central La Plata, and 0.7 mi (1.1 km) northeast of San Sebastian plaza.	10.3 (26.7)	2/24/94	1025	6.84 (0.194)
				4/20/94	1050	0.77 (0.022)
50147400	Río Sonador near San Sebastian, PR	Lat 18°18'49", long 67°00'29", Hydrologic Unit 21010003, at barrio Culebrinas on Highway 109, 1.3 mi (2.1 km) northeast from Cerro Yaitini, 2.1 mi (3.4 km) northeast from Cerro Cascajillo, and 2.0 mi (3.2 km) southwest from San Sebastian plaza.	6.09 (15.8)	2/24/94	0920	8.45 (0.239)
				4/20/94	1300	5.68
50147796	Quebrada Los Morones near Moca, PR	Lat 18°21'24", long 67°05'23", Hydrologic Unit 21010003, at barrio Cerro Gordo, 0.6 mi (1.0 km) upstream from Río Culebrinas, 3.6 mi (5.8 km) northwest from Cerro Pichon, 2.8 mi (4.5 km) northeast from Cerro Pelao, and 5.1 mi (8.2 km) northwest of Cental La Plata.	7.18 (18.6)	2/24/94	1225	9.43 (0.267)
				4/20/94	0840	6.87
50147997	Quebrada Grande near Moca, PR	Lat 18°22'50", long 67°06'49", Hydrologic unit 21010003, at barrio Cruz, 0.2 mi (0.3 km) upstream from Río Culebrinas, 2.6 mi (4.2 km) southwest from Monte El Ojo, and 1.0 mi (1.6 km) south of Moca plaza.	4.72 (12.2)	2/24/94	1330	1.27 (0.036)
				4/20/94	0755	0.10 (0.003)
50148500	Río Canas near Aguada, PR	Lat 18°22'19", long 67°09'06", Hydrologic Unit 21010003, at barrio Naranjo on Highway 417, 2.4 mi (3.9 km) northwest from Cerro Gordo, 4.5 mi (7.2 km) northeast of Cerro Santa Gallo, and 6.1 mi (9.8 km) north of Anasco plaza.	5.14 (13.3)	2/24/94	1450	3.77 (0.107)
				4/20/94	0645	2.54 (0.072)



**Water-Quality at
Parcial-Record Stations
in Puerto Rico**

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

Water-quality partial-record stations are particcular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrological analysis. The data are collected usually less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	SAM- PLING DEPTH (FEET)	SPE- CIFIC CON- DUCT- ANCE (US/CM)	PH WATER WHOLE FIELD (STAND- ARD UNITS)	TEMPER- ATURE WATER (DEG C)	TRANS- PAR- ENCY (SECCHI DISK) (IN)	OXYGEN, DIS- SOLVED (MG/L)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION)	COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML)
RIO GUAJATACA BASIN									
50010720	LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)								
NOV 1993 23...	0835	1.00	329	7.6	26.0	28.0	9.1	113	33
MAR 1994 15...	0850	1.00	345	7.8	26.5	55.2	9.8	--	K21
JUN 09...	0840	1.00	340	7.9	29.0	50.4	11.9	153	--
RIO GRANDE DE ARECIBO BASIN									
50025110	LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)								
NOV 1993 19...	0855	1.00	281	6.8	26.5	18.0	7.0	86	K42
MAR 1994 17...	0910	1.00	331	7.6	26.0	27.0	7.4	--	190
JUN 03...	0910	1.00	348	7.3	28.5	24.0	6.8	88	570
RIO DE LA PLATA BASIN									
50039900	LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)								
NOV 1993 16...	0855	1.00	180	6.3	25.0	42.0	--	80	K47
MAR 1994 16...	1225	1.00	193	8.7	26.0	48.0	10.6	--	K4
JUN 02...	0805	1.00	206	8.3	27.0	32.0	9.6	119	K11
50044400	LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)								
NOV 1993 15...	0950	1.00	404	7.7	27.5	30.0	8.6	108	K20
MAR 1994 10...	0755	1.00	448	7.5	25.5	18.0	6.3	--	K8
MAY 27...	0935	--	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN									
50057500	LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)								
NOV 1993 17...	0910	1.00	244	7.0	25.0	1.00	5.5	65	K6000
MAR 1994 11...	0810	1.00	387	6.7	26.5	28.8	1.3	--	5100
MAY 31...	1440	1.00	574	6.9	31.0	6.00	5.7	75	85000

K = non-ideal count

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

417

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	STREP- TOCOCCI (COLS. PER 100 ML)	ALKA- LINIT WAT WH TOT FET FIELD MG/L AS CACO3	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	PLANK- TON BIOMASS ASH WT (MG/L)	PLANK- TON BIOMASS DRY WT (MG/L)
RIO GUAJATACA BASIN--Continued									
50010720	LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)								
NOV 1993 23...	46	130	6	0.40	0.010	3.30	0.100	440	450
MAR 1994 15...	K19	130	--	0.50	0.020	--	--	--	--
JUN 09...	--	140	4	--	--	6.80	0.600	220	230
RIO GRANDE DE ARECIBO BASIN--Continued									
50025110	LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)								
NOV 1993 19...	K19	82	2	0.30	0.030	12.0	0.400	260	260
MAR 1994 17...	42	90	--	0.50	0.070	--	--	--	--
JUN 03...	210	90	11	0.80	0.040	6.00	0.400	350	360
RIO DE LA PLATA BASIN--Continued									
50039900	LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)								
NOV 1993 16...	K13	36	3	0.20	<0.010	4.90	1.10	250	260
MAR 1994 16...	<4	37	16	0.50	<0.010	49.0	16.0	250	260
JUN 02...	--	44	9	0.60	<0.010	7.90	2.70	240	250
50044400	LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)								
NOV 1993 15...	K6	140	2	0.70	0.070	46.0	5.20	260	260
MAR 1994 10...	K23	150	--	0.70	0.140	--	--	--	--
MAY 27...	--	--	23	1.0	0.130	5.60	0.900	490	500
RIO GRANDE DE LOIZA BASIN--Continued									
50057500	LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)								
NOV 1993 17...	K6000	50	208	1.1	0.290	0.900	0.200	850	890
MAR 1994 11...	230	100	10	2.4	0.480	2.30	0.300	260	260
MAY 31...	62000	150	44	5.9	0.720	15.0	2.50	860	890

K = non-ideal count

MISCELLANEOUS STATION ANALYSES

419

DATE	HARD- NESS TOTAL (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	SODIUM AD- SORP- TION RATIO	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
------	---	--	--	--	---	---	---	---	---	--

RIO GUAJATACA BASIN--Continued

50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)

NOV 1993										
23...	150	55	3.2	4.9	0.2	1.6	160	7.1	6.7	0.10
23...	130	45	3.3	5.2	0.2	1.6	120	8.7	7.6	0.10
MAR 1994										
15...	130	47	3.6	5.6	0.2	1.9	130	8.8	8.4	<0.10
15...	150	52	3.7	5.8	0.2	2.1	140	8.6	8.4	<0.10
JUN										
09...	140	51	3.3	4.8	0.2	2.0	130	9.8	7.0	0.10
09...	110	39	3.4	5.5	0.2	1.8	110	9.3	8.4	<0.10

RIO GRANDE DE ARECIBO BASIN--Continued

50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)

NOV 1993										
22...	61	17	4.6	6.4	0.4	1.1	69	3.2	4.9	0.10
22...	--	--	--	--	--	--	82	0.40	4.5	<0.10
MAR 1994										
14...	68	19	5.1	6.0	0.3	1.5	84	0.60	5.4	<0.10
14...	65	18	4.9	6.1	0.3	1.3	74	2.4	5.5	<0.10
JUN										
08...	71	19	5.7	6.8	0.4	1.3	77	2.8	5.8	<0.10
09...	68	19	5.0	6.2	0.3	1.6	--	0.20	5.3	<0.10

50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)

NOV 1993										
19...	69	19	5.3	8.7	0.5	1.8	65	9.6	8.4	0.10
19...	82	22	6.6	11	0.5	2.0	80	15	10	0.20
MAR 1994										
17...	93	25	7.5	12	0.5	2.2	90	16	13	<0.10
17...	93	25	7.4	12	0.5	2.2	90	17	16	<0.10
JUN										
03...	93	25	7.4	12	0.5	2.3	92	13	12	<0.10
03...	99	27	7.6	14	0.6	2.3	90	17	13	<0.10

RIO DE LA PLATA BASIN--Continued

50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)

NOV 1993										
16...	32	7.0	3.6	6.1	0.5	1.1	52	0.20	6.7	0.10
16...	30	5.3	4.0	8.8	0.7	0.90	35	3.2	8.0	0.10
MAR 1994										
16...	33	6.9	3.9	8.6	0.6	0.90	38	2.6	8.9	<0.10
16...	33	6.7	3.9	7.9	0.6	1.0	41	2.6	9.3	<0.10
JUN										
02...	35	7.0	4.3	8.4	0.6	1.0	57	0.90	9.2	<0.10
02...	34	6.2	4.4	10	0.8	0.90	40	3.0	10	<0.10

50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)

NOV 1993										
15...	86	20	8.8	16	0.8	3.0	94	14	62	0.20
15...	120	28	12	18	0.7	2.5	120	12	16	0.20
MAR 1994										
10...	120	28	11	16	0.6	2.4	120	8.0	18	0.10
10...	140	33	13	21	0.8	2.1	140	13	22	0.10
MAY										
27...	140	32	14	20	0.7	2.7	--	9.3	22	0.10
27...	140	33	15	22	0.8	1.9	--	15	24	0.10

RIO GRANDE DE LOIZA BASIN--Continued

50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)

NOV 1993										
17...	65	16	6.0	16	0.9	3.2	71	11	17	0.20
17...	98	24	9.2	24	1	3.1	100	15	22	0.10
MAR 1994										
11...	79	19	7.7	23	1	0.20	89	16	25	0.10
11...	81	20	7.6	25	1	2.4	85	15	24	0.10
MAY										
31...	100	26	9.7	29	1	4.0	--	18	30	0.10
31...	110	26	9.9	30	1	4.0	--	17	29	0.10

MISCELLANEOUS STATION ANALYSES

DATE	SILICA, DIS- SOLVED (MG/L AS SIO ₂)	SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N)	PHOS- PHORUS TOTAL (MG/L AS P)	CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L)	PLANK- TON BIOMASS ASH WT (MG/L)	PLANK- TON BIOMASS DRY WT (MG/L)
RIO GUAJATACA BASIN--Continued									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
NOV 1993									
23...	7.5	182	<1	0.30	<0.010	6.40	0.200	260	270
23...	1.4	145	--	--	--	--	--	--	--
MAR 1994									
15...	4.0	157	2	0.30	<0.010	3.50	0.100	250	260
15...	5.2	170	--	--	--	--	--	--	--
JUN									
09...	5.3	161	<1	--	--	7.20	0.300	300	310
09...	4.8	138	--	--	--	--	--	--	--
RIO GRANDE DE ARECIBO BASIN--Continued									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
NOV 1993									
22...	19	98	2	0.30	0.010	3.30	0.200	260	260
22...	17	--	--	--	--	--	--	--	--
MAR 1994									
14...	20	108	5	0.40	0.010	6.40	0.200	250	260
14...	20	102	--	--	--	--	--	--	--
JUN									
08...	18	106	4	--	--	2.80	0.200	360	370
09...	20	108	--	--	--	--	--	--	--
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
NOV 1993									
19...	22	137	1	0.20	0.020	6.70	0.300	250	260
19...	23	115	--	--	--	--	--	--	--
MAR 1994									
17...	24	158	1	0.30	<0.010	2.80	0.200	250	260
17...	24	154	--	--	--	--	--	--	--
JUN									
03...	22	157	<1	0.40	0.010	5.20	0.400	240	240
03...	22	149	--	--	--	--	--	--	--
RIO DE LA PLATA BASIN--Continued									
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
NOV 1993									
16...	21	72	3	<0.20	<0.010	6.40	1.30	250	260
16...	13	69	--	--	--	--	--	--	--
MAR 1994									
16...	19	74	--	0.50	<0.010	62.0	19.0	250	260
16...	18	74	--	--	--	--	--	--	--
JUN									
02...	19	77	17	0.40	0.020	13.0	5.10	210	220
02...	19	84	--	--	--	--	--	--	--
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
NOV 1993									
15...	22	183	2	0.30	0.020	2.10	0.100	250	250
15...	19	199	--	--	--	--	--	--	--
MAR 1994									
10...	23	211	5	0.30	0.040	2.20	0.200	250	260
10...	23	178	--	--	--	--	--	--	--
MAY									
27...	20	222	8	0.30	0.010	2.00	0.300	240	250
27...	22	211	--	--	--	--	--	--	--
RIO GRANDE DE LOIZA BASIN--Continued									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
NOV 1993									
17...	28	185	2	0.80	0.140	12.0	0.800	260	270
17...	19	131	--	--	--	--	--	--	--
MAR 1994									
11...	25	170	--	0.80	0.110	--	--	--	--
11...	26	170	--	--	--	--	--	--	--
MAY									
31...	26	207	12	0.90	0.080	12.0	1.90	280	290
31...	27	208	--	--	--	--	--	--	--

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

421

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	CHLOR- DANE, TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI- AZINON, TOTAL (UG/L)	DI- ELDRIN TOTAL (UG/L)	ENDO- SULFAN, TOTAL (UG/L)
RIO GUAJATACA BASIN--CONTINUED										
50010790		LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUN 09...	0915	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO GRANDE DE ARECIBO BASIN--CONTINUED										
50020050		LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUN 08...	1105	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
50027090		LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUN 03...	0930	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO DE LA PLATA BASIN--CONTINUED										
50039950		LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
JUN 02...	0835	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
50044950		LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
MAY 27...	0845	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	<0.01	<0.010	<0.010
RIO GRANDE DE LOIZA BASIN--CONTINUED										
50058800		LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
MAY 1994 31...	1145	<0.1	<0.010	<0.1	<0.010	<0.010	<0.010	0.02	<0.010	<0.010

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	ENDRIN WATER UNFLTRD REC (UG/L)	ETHION, TOTAL (UG/L)	HEPTA- CHLOR, TOTAL (UG/L)	HEPTA- CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	MALA- THION, TOTAL (UG/L)	METH- OXY- CHLOR, TOTAL (UG/L)	METHYL PARA- THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)
RIO GUAJATACA BASIN--CONTINUED									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUN 09...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE ARECIBO BASIN--CONTINUED									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUN 08...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUN 03...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO DE LA PLATA BASIN--CONTINUED									
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
JUN 02...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
MAY 27...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE LOIZA BASIN--CONTINUED									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
MAY 1994 31...	<0.010	<0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.01	<0.01

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL RECORD STATIONS

423

WATER-QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

DATE	PARA- THION, TOTAL (UG/L)	NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L)	PER- THANE TOTAL (UG/L)	TOX- APHENE, TOTAL (UG/L)	TOTAL TRI- THION (UG/L)	2,4-D, TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	SILVEX, TOTAL (UG/L)
RIO GUAJATACA BASIN--CONTINUED									
50010790	LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W)								
JUN 09...	<0.01	<0.10	<0.1	<1	<0.01	0.07	<0.01	<0.01	<0.01
RIO GRANDE DE ARECIBO BASIN--CONTINUED									
50020050	LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W)								
JUN 08...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01
50027090	LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W)								
JUN 03...	<0.01	<0.10	<0.1	<1	<0.01	0.03	<0.01	<0.01	<0.01
RIO DE LA PLATA BASIN--CONTINUED									
50039950	LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W)								
JUN 02...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01
50044950	LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W)								
MAY 27...	<0.01	<0.10	<0.1	<1	<0.01	<0.01	<0.01	<0.01	<0.01
RIO GRANDE DE LOIZA BASIN--CONTINUED									
50058800	LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W)								
MAY 1994 31...	<0.01	<0.10	<0.1	<1	<0.01	0.02	<0.01	<0.01	<0.01

THIS PAGE WAS LEFT BLANK
INTENTIONALLY



Ground-Water Records for Puerto Rico

GROUND-WATER LEVELS

RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.60 mi northeast of Moca plaza, 4.70 mi southeast of Aguadilla U.S. Naval Reservation radio antenna, and 1.63 mi northwest of La Virgen del Rosario Church. Owner: P.R. Aqueduct and Sewer Authority, Name: Saltos # 1 (Mateo Pérez).

AQUIFER.--Cibao Formation. Aguada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40 ft (0-12.2 m), cased 12 in (0.30 m) 40-200 ft (12.2-61.0 m). Depth 200 ft (61.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 689 ft (210 m) above mean sea level.

Measuring point: Hole on pump base, 0.80 ft (0.24 m) above land-surface datum. Prior to November 1985, hole on top of pump base, 1.00 ft (0.30 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182421067015000.

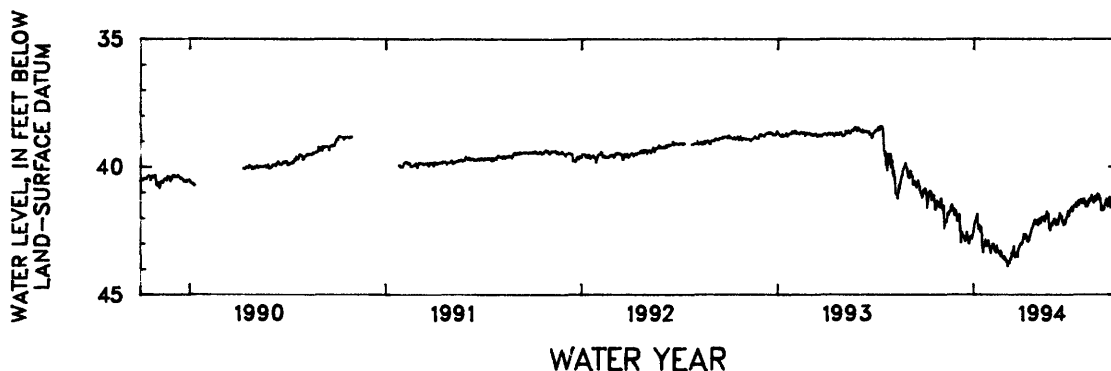
PERIOD OF RECORD.--January 1982 to March 1985, November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 38.36 ft (11.7 m) below land-surface datum, July 12, 1993; lowest water level measured, 70.60 ft (21.52 m) below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40.97	41.28	41.93	42.50	43.16	43.59	43.02	42.06	42.03	41.67	41.56	41.70
2	41.02	41.24	42.13	42.37	43.28	43.65	43.02	42.32	42.22	41.61	41.45	41.58
3	40.84	41.62	41.99	42.22	43.38	43.65	42.95	42.19	42.11	41.57	41.42	41.46
4	40.95	41.56	42.11	42.17	43.15	43.73	42.77	42.05	42.26	41.56	41.30	41.39
5	41.07	41.67	41.94	42.11	43.18	43.85	42.63	42.02	42.15	41.74	41.25	41.28
6	41.12	41.50	41.85	42.00	43.02	43.89	42.81	42.22	42.06	41.58	41.35	41.25
7	41.64	41.78	42.52	41.91	43.12	43.68	42.77	42.14	42.24	41.52	41.28	41.42
8	41.33	42.42	42.30	41.84	43.02	43.74	42.71	42.05	42.13	41.54	41.19	41.56
9	41.19	42.10	42.99	42.09	43.12	43.77	42.64	41.95	42.03	41.52	41.11	41.44
10	41.08	42.18	42.69	42.28	43.25	43.66	42.72	41.96	41.91	41.45	41.32	41.29
11	40.97	42.15	42.54	42.43	43.30	43.58	42.74	41.95	41.80	41.40	41.27	41.24
12	40.95	42.13	42.67	42.27	43.32	43.63	42.93	42.06	42.01	41.58	41.21	41.19
13	40.94	41.99	42.71	42.36	43.35	43.47	42.84	41.93	41.92	41.46	41.40	41.62
14	41.01	41.80	42.73	42.54	43.07	43.35	42.93	42.13	41.91	41.43	41.28	41.48
15	41.31	41.78	42.79	42.41	43.23	43.47	42.85	42.02	42.00	41.32	41.20	41.57
16	41.10	41.86	42.84	42.35	43.30	43.29	42.73	41.92	42.14	41.50	41.14	41.50
17	41.25	41.73	42.92	42.65	43.30	43.20	42.65	41.86	42.18	41.40	41.34	41.43
18	41.14	41.75	42.80	43.11	43.35	43.10	42.59	41.73	42.28	41.37	41.24	41.27
19	41.10	41.73	42.69	43.26	43.40	43.47	42.50	41.90	42.19	41.28	41.12	41.13
20	41.33	41.57	42.54	43.34	43.48	43.54	42.42	41.83	42.08	41.27	41.06	41.24
21	41.42	41.52	42.72	43.03	43.28	43.41	42.38	42.03	42.25	41.34	41.26	41.23
22	41.68	41.47	42.80	43.10	43.34	43.50	42.31	42.25	42.14	41.42	41.15	41.08
23	41.62	41.72	42.93	42.95	43.46	43.36	42.23	42.43	42.04	41.30	41.09	41.17
24	41.48	41.63	43.01	42.85	43.52	43.51	42.19	42.49	41.93	41.26	41.29	41.20
25	41.32	41.75	42.84	42.97	43.57	43.39	42.12	42.33	41.86	41.28	41.23	41.07
26	41.45	41.63	42.76	43.04	43.58	43.27	42.06	42.26	41.77	41.25	41.42	41.03
27	41.37	41.92	42.71	43.10	43.62	43.17	42.25	42.19	41.72	41.46	41.71	41.56
28	41.54	41.78	42.80	42.99	43.49	43.14	42.19	42.29	41.92	41.35	41.63	41.37
29	41.44	41.70	42.81	42.87	---	43.07	42.17	42.18	41.78	41.56	41.53	41.22
30	41.57	41.84	42.70	43.03	---	43.00	42.12	42.09	41.71	41.51	41.72	41.06
31	41.41	---	42.63	43.10	---	42.98	---	42.04	---	41.37	41.59	---
MEAN	41.25	41.76	42.59	42.62	43.31	43.46	42.57	42.09	42.03	41.45	41.33	41.33

WTR YR 1994 MEAN 42.14 HIGHEST 40.73 OCT. 3, 1993 LOWEST 43.92 MAR. 4, 5, 6, 1994



GROUND-WATER LEVELS

427

RIO GUAJATACA BASIN

182647066552400. Local number, 202.

LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of Escuela José de Diego, and 1.99 mi northwest of El Calvario Church. Owner: P.R. Aqueduct and Sewer Authority, Name: Carmelo Barreto Garcia well.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-167.6 m), perforated 270-529 ft (82.3-161.2 m). Depth 550 ft (167.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 475 ft (145 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.50 ft (0.46 m) above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.30 ft (1.00 m) above land-surface datum.

REMARKS.--Recording observation well.

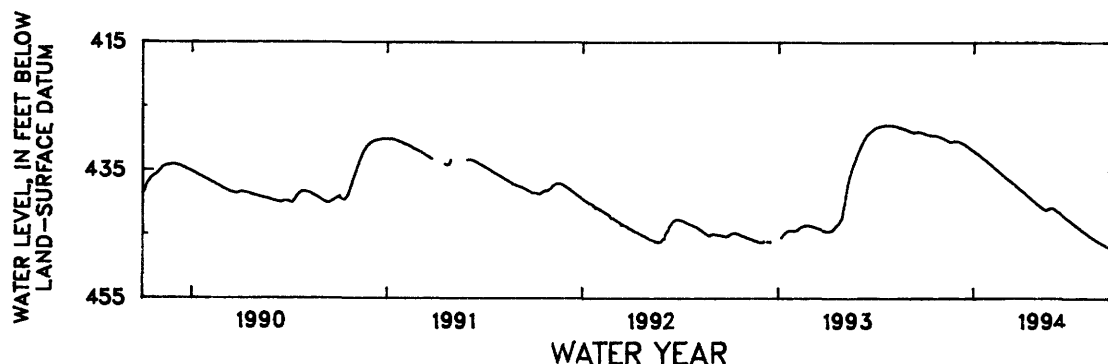
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 409.17 ft (124.71 m) below land-surface datum, Sept. 25, 1986; lowest water level recorded, 452.80 ft (138.01 m) below land-surface datum, June 26, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429.23	429.80	430.42	431.99	434.01	436.08	438.19	440.36	441.11	443.03	444.99	446.61
2	429.28	429.87	430.44	432.05	434.08	436.14	438.27	440.44	441.17	443.09	445.05	446.67
3	429.27	429.91	430.47	432.08	434.19	436.17	438.33	440.49	441.22	443.16	445.13	446.70
4	429.30	429.95	430.49	432.18	434.24	436.25	438.38	440.55	441.27	443.25	445.18	446.80
5	429.34	429.99	430.52	432.27	434.29	436.36	438.45	440.62	441.35	443.31	445.29	446.83
6	429.36	430.01	430.57	432.30	434.38	436.40	438.55	440.68	441.41	443.37	445.34	446.88
7	429.38	430.07	430.62	432.34	434.45	436.46	438.63	440.76	441.46	443.44	445.38	446.90
8	429.38	430.14	430.66	432.41	434.54	436.49	438.69	440.82	441.53	443.50	445.42	446.93
9	429.40	430.17	430.68	432.50	434.59	436.55	438.76	440.87	441.57	443.60	445.48	446.99
10	429.43	430.21	430.72	432.56	434.67	436.66	438.84	440.96	441.62	443.64	445.54	447.00
11	429.45	430.24	430.75	432.63	434.73	436.73	438.93	441.03	441.69	443.69	445.59	447.01
12	429.49	430.30	430.82	432.67	434.80	436.79	439.02	441.06	441.76	443.76	445.63	447.02
13	429.50	430.36	430.85	432.70	434.86	436.85	439.09	441.09	441.83	443.80	445.69	447.01
14	429.51	430.40	430.89	432.80	434.93	436.93	439.15	441.13	441.88	443.88	445.75	446.98
15	429.52	430.45	430.93	432.88	435.05	436.99	439.21	441.16	441.96	443.94	445.81	446.97
16	429.49	430.49	431.01	432.96	435.13	437.05	439.29	441.18	442.02	444.00	445.90	447.03
17	429.48	430.52	431.06	433.01	435.18	437.13	439.35	441.18	442.07	444.06	445.95	447.04
18	429.51	430.52	431.18	433.07	435.25	437.21	439.41	441.10	442.16	444.14	445.99	447.03
19	429.52	430.48	431.20	433.15	435.33	437.25	439.50	441.05	442.22	444.21	446.02	447.05
20	429.52	430.46	431.25	433.22	435.42	437.34	439.56	441.01	442.29	444.26	446.09	447.09
21	429.54	430.45	431.32	433.24	435.47	437.41	439.63	440.96	442.37	444.34	446.14	447.10
22	429.53	430.44	431.40	433.32	435.52	437.47	439.70	440.93	442.45	444.41	446.18	447.13
23	429.54	430.42	431.48	433.41	435.63	437.55	439.76	440.90	442.49	444.44	446.25	447.09
24	429.58	430.36	431.50	433.47	435.70	437.63	439.85	440.85	442.55	444.51	446.28	447.10
25	429.59	430.38	431.58	433.56	435.77	437.70	439.92	440.85	442.62	444.57	446.30	447.09
26	429.62	430.36	431.67	433.59	435.82	437.77	440.00	440.87	442.68	444.63	446.35	447.08
27	429.65	430.38	431.76	433.66	435.93	437.84	440.06	440.89	442.75	444.67	446.42	447.07
28	429.70	430.38	431.75	433.73	436.01	437.92	440.17	440.90	442.82	444.74	446.46	447.04
29	429.75	430.38	431.78	433.82	---	438.00	440.22	440.94	442.88	444.81	446.51	447.03
30	429.77	430.40	431.86	433.89	---	438.04	440.29	440.98	442.95	444.88	446.55	447.02
31	429.78	---	431.91	433.95	---	438.12	---	441.04	---	444.94	446.60	---
MEAN	429.50	430.28	431.08	432.95	435.00	437.07	439.24	440.89	442.00	444.00	445.85	446.98

WTR YR 1994 MEAN 437.91 HIGHEST 429.18 OCT. 1, 1993 LOWEST 447.15 SEPT. 22, 23, 1994



GROUND-WATER LEVELS
RIO GRANDE DE ARECIBO BASIN

182737066370900. Local number, 204.

LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro. Owner: Sucesión Marquez, Name: Gilberto Rivera well.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 48.0 ft (14.63 m) above mean sea level.

Measuring point: Air hole on pump base, 0.50 ft (0.15 m) above land-surface datum.

REMARKS.--Recording observation well.

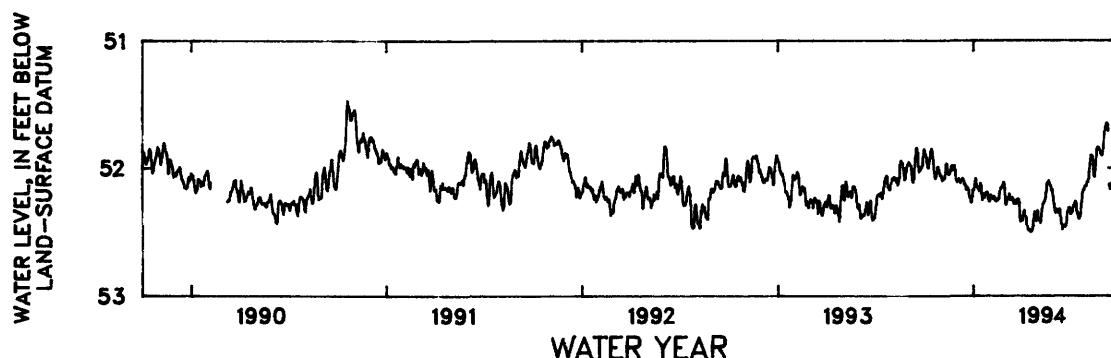
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.00 ft (15.24 m) below land-surface datum, May 14, 1986; lowest water level recorded, 52.59 ft (16.0 m) below land-surface datum, Apr. 15, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	51.85	52.06	52.10	52.17	52.26	52.16	52.41	52.33	52.28	52.36	52.11	51.84
2	51.87	52.06	52.11	52.17	52.22	52.24	52.38	52.34	52.31	52.36	52.11	51.79
3	51.89	52.08	52.09	52.15	52.21	52.29	52.38	52.41	52.34	52.34	52.11	51.73
4	51.90	52.10	52.10	52.10	52.22	52.28	52.41	52.41	52.35	52.35	52.08	51.71
5	51.91	52.09	52.08	52.08	52.23	52.26	52.37	52.41	52.32	52.34	52.03	51.68
6	51.95	52.08	52.09	52.10	52.24	52.24	52.34	52.42	52.33	52.32	51.98	51.66
7	51.99	52.08	52.10	52.13	52.24	52.23	52.33	52.43	52.34	52.29	51.93	51.65
8	51.99	52.08	52.12	52.15	52.22	52.23	52.38	52.41	52.34	52.30	51.90	51.65
9	52.00	52.08	52.10	52.15	52.22	52.22	52.38	52.34	52.35	52.29	51.90	51.66
10	51.97	52.03	52.09	52.16	52.24	52.20	52.39	52.32	52.34	52.26	51.90	51.71
11	51.95	51.97	52.09	52.17	52.25	52.25	52.43	52.28	52.32	52.26	51.91	---
12	51.92	51.96	52.08	52.18	52.26	52.25	52.46	52.28	52.33	52.28	51.94	52.13
13	51.87	51.97	52.09	52.16	52.26	52.25	52.48	52.27	52.38	52.34	52.02	52.15
14	51.86	52.03	52.10	52.12	52.25	52.24	52.49	52.26	52.40	52.36	52.04	52.17
15	51.85	52.05	52.13	52.12	52.24	52.23	52.49	52.25	52.44	52.35	52.07	52.16
16	51.87	52.05	52.12	52.15	52.25	52.24	52.48	52.23	52.48	52.38	52.06	52.12
17	51.91	52.04	52.13	52.21	52.24	52.26	52.50	52.19	52.45	52.40	52.02	52.12
18	51.94	52.05	52.14	52.25	52.24	52.28	52.50	52.16	52.46	52.39	51.95	52.10
19	52.01	52.03	52.17	52.23	52.20	52.28	52.50	52.12	52.45	52.38	51.90	52.09
20	52.03	52.01	52.16	52.20	52.18	52.26	52.49	52.11	52.46	52.36	51.85	52.08
21	52.07	51.98	52.15	52.22	52.16	52.25	52.48	52.11	52.46	52.31	51.84	52.09
22	52.08	51.98	52.16	52.23	52.16	52.27	52.46	52.10	52.45	52.28	51.84	52.08
23	52.08	52.00	52.17	52.21	52.15	52.28	52.45	52.12	52.44	52.21	51.84	52.09
24	52.06	52.02	52.19	52.20	52.15	52.26	52.41	52.13	52.43	52.19	51.85	52.13
25	52.03	52.00	52.23	52.19	52.15	52.24	52.36	52.14	52.39	52.17	51.86	52.18
26	51.99	51.98	52.23	52.19	52.13	52.24	52.34	52.14	52.34	52.17	51.87	52.17
27	51.99	51.98	52.24	52.19	52.11	52.25	52.37	52.17	52.34	52.16	51.89	52.17
28	52.01	52.02	52.27	52.19	52.12	52.27	52.39	52.18	52.31	52.14	51.89	52.20
29	52.03	52.05	52.26	52.24	---	52.34	52.42	52.17	52.32	52.14	51.90	52.20
30	52.04	52.09	52.22	52.25	---	52.40	52.40	52.22	52.31	52.14	51.90	52.16
31	52.06	---	52.17	52.26	---	52.42	---	52.25	---	52.13	51.88	---
MEAN	51.97	52.03	52.14	52.18	52.21	52.26	52.42	52.25	52.38	52.28	51.95	51.99

WTR YR 1994 MEAN 52.17 HIGHEST 51.59 SEPT. 9, 1994 LOWEST 52.59 APR. 15, 1994



GROUND-WATER LEVELS
RIO GRANDE DE MANATI BASIN

192757066325600. Local number, 206.

LOCATION.--Lat 18°27'57", long 66°32'56", Hydrologic Unit 21010002, 0.84 mi northwest of Barceloneta plaza, 0.64 mi west of Central Plazuela, and 1.96 mi southeast of Escuela Agustín Balseiro. Owner: P.R. Department of Agriculture, Name: Plazuela No. 2.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 7.0 ft (2.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

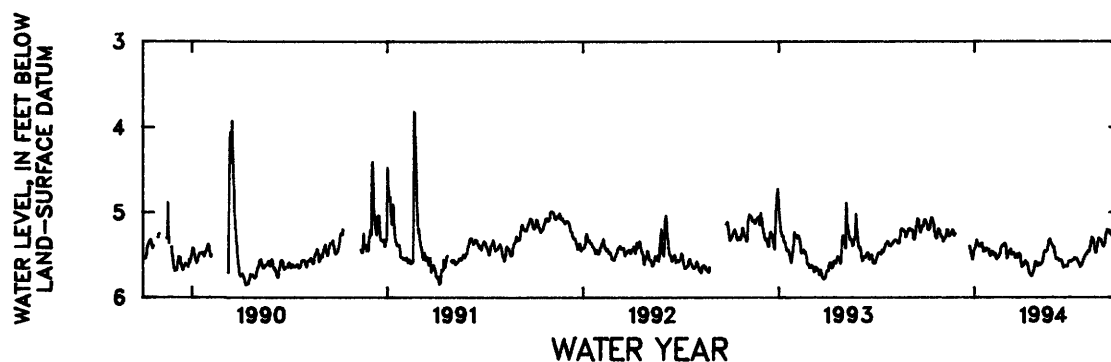
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.75 ft (1.14 m) below land-surface datum, Sept. 11, 1988; lowest water level recorded, 5.89 ft (1.80 m) below land-surface datum, Apr. 11, 12, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.08	5.29	---	5.43	5.50	5.40	5.63	5.60	5.50	5.58	5.45	5.36
2	5.09	5.29	---	5.42	5.46	5.47	5.60	5.60	5.54	5.57	5.45	5.31
3	5.11	5.31	---	5.40	5.46	5.54	5.60	5.62	5.55	5.56	5.46	5.26
4	5.12	5.34	---	5.36	5.46	5.53	5.62	5.62	5.55	5.56	5.44	5.24
5	5.14	5.33	---	5.32	5.48	5.49	5.60	5.61	5.54	5.55	5.40	5.22
6	5.17	5.31	---	5.33	5.49	5.48	5.57	5.60	5.54	5.55	5.36	5.20
7	5.20	5.30	---	5.35	5.50	5.45	5.57	5.60	5.55	5.53	5.32	---
8	5.20	5.29	---	5.37	5.48	5.46	5.59	5.58	5.56	5.55	5.29	5.21
9	5.20	5.28	---	5.38	5.48	5.45	5.60	5.55	5.57	5.55	5.30	5.21
10	5.18	5.24	---	5.40	5.51	5.43	5.60	5.51	5.56	5.54	5.31	5.21
11	5.14	5.20	---	5.39	5.54	5.49	5.63	5.47	5.56	5.54	5.33	5.25
12	5.09	5.20	---	5.40	5.55	5.49	5.67	5.46	5.56	5.56	5.36	5.25
13	5.06	5.21	---	5.39	5.54	5.49	5.70	5.45	5.57	5.58	5.41	5.25
14	5.06	5.26	---	5.36	5.53	5.48	5.72	5.45	5.59	5.59	5.44	5.27
15	5.07	5.28	---	5.36	5.51	5.47	5.73	5.46	5.62	5.60	5.47	5.26
16	5.10	5.27	---	5.37	5.52	5.48	5.72	5.45	5.65	5.61	5.47	5.24
17	5.13	5.26	---	5.43	5.49	5.50	5.73	5.44	5.64	5.64	5.44	5.24
18	5.17	5.25	---	5.46	5.48	5.53	5.75	5.40	5.64	5.63	5.40	5.23
19	5.23	5.24	---	5.45	5.44	5.53	5.73	5.36	5.63	5.62	5.35	5.23
20	5.27	5.22	---	5.42	5.41	5.50	5.71	5.33	5.63	5.62	5.31	5.23
21	5.29	5.20	---	5.43	5.40	5.49	5.70	5.32	5.63	5.60	5.30	5.23
22	5.30	5.21	---	5.45	5.39	5.51	5.67	5.31	5.63	5.58	5.31	5.23
23	5.30	5.23	5.40	5.44	5.38	5.53	5.66	5.35	5.63	5.56	5.31	5.23
24	5.25	5.27	5.43	5.42	5.39	5.50	5.61	5.36	5.63	5.55	5.32	5.26
25	5.22	5.27	5.47	5.43	5.39	5.49	5.58	5.37	5.59	5.52	5.32	5.30
26	5.19	5.25	5.48	5.43	5.37	5.48	5.58	5.38	5.58	5.52	5.35	5.30
27	5.20	---	5.51	5.43	5.36	5.50	5.59	5.40	5.57	5.50	5.36	5.29
28	5.21	---	5.55	5.43	5.37	5.52	5.60	5.41	5.58	5.49	5.38	5.30
29	5.25	---	5.55	5.48	---	5.58	5.63	5.40	5.57	5.48	5.39	5.30
30	5.26	---	5.49	5.50	---	5.61	5.62	5.44	5.57	5.49	5.40	5.27
31	5.28	---	5.45	5.51	---	5.64	---	5.47	---	5.46	5.38	---
MEAN	5.18	5.26	5.48	5.41	5.46	5.50	5.64	5.46	5.58	5.56	5.37	5.25

WTR YR 1994 MEAN 5.43 HIGHEST 5.05 OCT. 13, 1993 LOWEST 5.80 APR. 15, 1994



GROUND-WATER LEVELS

RIO GRANDE DE MANATI BASIN

182710066303700. Local number, 207.

LOCATION.--Lat 18°27'10", long 66°30'37", Hydrologic Unit 21010002, 1.92 mi east of Barceloneta plaza, 1.35 mi north of Central Monserrate, and 2.68 mi northeast of Escuela José Cordero. Owner: P.R. Aqueduct and Sewer Authority, Name: Cantito La Luisa.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30 ft (0-9.14 m), cased 10 in (0.25 m) 0-126 ft (0-38.4 m), perforated 80-126 ft (24.4-38.4 m). Depth 126 ft (38.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m) above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

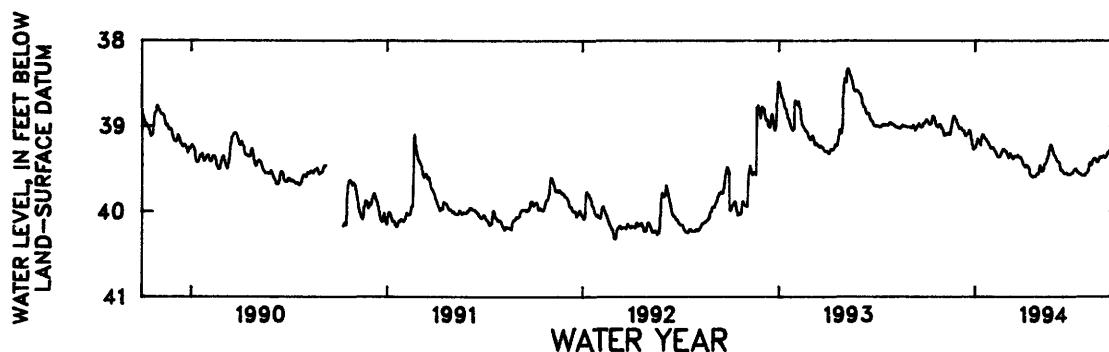
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.38 ft (11.09 m) below land-surface datum, May 15, 1986; lowest water level recorded, 89.83 ft (27.38 m) below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38.93	39.04	39.01	39.25	39.26	39.32	39.45	39.47	39.38	39.55	39.47	39.36
2	38.92	39.06	39.03	39.23	39.25	39.33	39.46	39.46	39.40	39.55	39.44	39.35
3	38.93	39.10	39.03	39.21	39.25	39.35	39.46	39.48	39.41	39.53	39.43	39.34
4	38.94	39.11	39.03	39.18	39.26	39.37	39.48	39.51	39.41	39.52	39.45	39.32
5	38.95	39.10	39.02	39.15	39.27	39.36	39.48	39.53	39.42	39.51	39.46	39.31
6	38.96	39.09	39.02	39.16	39.28	39.34	39.46	39.52	39.42	39.51	39.45	39.31
7	38.98	39.09	39.04	39.16	39.29	39.32	39.46	39.52	39.43	39.50	39.42	39.31
8	38.98	39.10	39.05	39.17	39.30	39.33	39.47	39.52	39.47	39.50	39.41	39.29
9	38.98	39.10	39.05	39.19	39.31	39.34	39.47	39.49	39.51	39.52	39.39	39.29
10	38.97	39.09	39.05	39.21	39.33	39.35	39.48	39.45	39.52	39.53	39.38	39.28
11	38.96	39.08	39.06	39.22	39.35	39.36	39.49	39.44	39.51	39.54	39.38	39.29
12	38.92	39.08	39.09	39.15	39.36	39.38	39.51	39.44	39.52	39.54	39.38	39.28
13	38.89	39.09	39.11	39.12	39.36	39.38	39.55	39.42	39.53	39.55	39.38	39.28
14	38.88	39.10	39.11	39.10	39.36	39.37	39.57	39.40	39.54	39.56	39.40	39.28
15	38.89	39.09	39.10	39.10	39.36	39.35	39.58	39.38	39.55	39.56	39.40	39.28
16	38.90	39.05	39.09	39.10	39.36	39.35	39.58	39.37	39.56	39.56	39.42	39.27
17	38.93	39.01	39.09	39.12	39.34	39.35	39.59	39.35	39.55	39.57	39.42	39.28
18	38.94	38.98	39.09	39.14	39.33	39.35	39.59	39.31	39.56	39.57	39.42	39.28
19	38.97	38.94	39.08	39.14	39.31	39.36	39.60	39.28	39.55	39.58	39.39	39.29
20	38.99	38.91	39.05	39.15	39.30	39.35	39.59	39.24	39.55	39.58	39.38	39.29
21	39.00	38.89	39.05	39.15	39.29	39.34	39.59	39.23	39.55	39.58	39.37	39.28
22	39.00	38.88	39.06	39.17	39.27	39.35	39.59	39.22	39.56	39.58	39.36	39.28
23	39.01	38.89	39.10	39.18	39.27	39.36	39.59	39.23	39.57	39.58	39.36	39.28
24	39.00	38.91	39.13	39.18	39.27	39.36	39.58	39.25	39.57	39.58	39.37	39.29
25	39.00	38.92	39.17	39.19	39.29	39.37	39.57	39.28	39.57	39.58	39.36	39.30
26	38.98	38.92	39.21	39.20	39.29	39.36	39.56	39.30	39.57	39.56	39.36	39.29
27	38.98	38.94	39.25	39.22	39.29	39.37	39.56	39.33	39.57	39.55	39.36	39.27
28	38.99	38.97	39.27	39.23	39.30	39.38	39.55	39.34	39.56	39.55	39.35	39.25
29	39.01	38.98	39.27	39.25	---	39.40	39.56	39.34	39.56	39.54	39.36	39.25
30	39.03	39.00	39.26	39.26	---	39.42	39.52	39.36	39.55	39.53	39.36	39.24
31	39.03	---	39.25	39.26	---	39.44	---	39.37	---	39.52	39.37	---
MEAN	38.96	39.02	39.10	39.18	39.30	39.36	39.53	39.38	39.51	39.55	39.40	39.29

WTR YR 1994 MEAN 39.30 HIGHEST 38.88 NOV. 21, 22, 1993 LOWEST 39.60 JULY 21, 22, 23, 24, 1994



GROUND-WATER LEVELS
RIO GRANDE DE MANATI BASIN

431

182308066260400. Local number, 210.

LOCATION.--Lat 18°23'08", long 66°26'04", Hydrologic Unit 21010002, 4.88 mi southeast of Manatí plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho. Owner: Gelo Martínez, Name: Gelo Martínez well.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.30 ft (1.01 m) above land-surface datum. Prior to January 14, 1993, hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

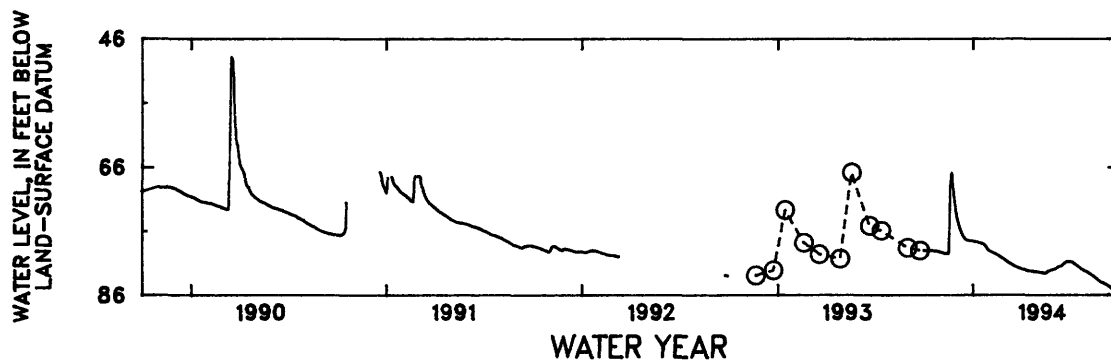
REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.36 m) below land-surface datum, May 22, 1986; lowest water level recorded, 85.32 ft (26.0 m) below land-surface datum, Sept. 29, 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79.02	79.29	73.69	77.56	79.10	80.47	81.94	82.39	81.94	80.74	82.33	84.11
2	79.02	79.31	74.11	77.58	79.14	80.53	81.96	82.40	81.91	80.75	82.34	84.14
3	79.02	79.34	74.49	77.60	79.19	80.58	81.98	82.40	81.89	80.78	82.34	84.19
4	79.03	79.36	74.82	77.62	79.25	80.64	82.00	82.41	81.86	80.81	82.51	84.25
5	79.03	79.38	75.08	77.62	79.29	80.71	82.01	82.42	81.79	80.85	82.56	84.29
6	79.03	79.41	75.34	77.63	79.33	80.77	82.03	82.42	81.72	80.87	82.60	84.33
7	79.03	79.44	75.61	77.65	79.38	80.83	82.04	82.42	81.71	80.93	82.65	84.38
8	79.03	79.46	75.86	77.68	79.42	80.88	82.06	82.43	81.60	81.06	82.71	84.43
9	79.03	79.49	76.09	77.70	79.46	80.94	82.07	82.48	81.54	81.09	82.77	84.49
10	79.03	79.51	76.29	77.74	79.48	80.99	82.08	82.47	81.52	81.14	82.85	84.54
11	79.03	79.51	76.47	77.77	79.53	81.06	82.11	82.47	81.50	81.18	82.91	84.59
12	79.04	79.52	76.62	77.79	79.57	81.11	82.13	82.48	81.47	81.24	82.96	84.66
13	79.04	79.52	76.76	77.82	79.60	81.15	82.15	82.57	81.46	81.30	83.02	84.71
14	79.04	79.53	76.89	77.83	79.65	81.21	82.17	82.58	81.44	81.35	83.08	84.75
15	79.04	79.51	77.00	77.84	79.70	81.26	82.19	82.58	81.39	81.42	83.12	84.84
16	79.04	79.20	77.11	77.87	79.75	81.31	82.20	82.57	81.31	81.49	83.18	84.90
17	79.04	76.56	77.23	77.89	79.80	81.36	82.21	82.55	81.21	81.60	83.26	84.94
18	79.04	72.54	77.32	77.90	79.85	81.40	82.23	82.52	81.15	81.67	83.32	85.01
19	79.05	68.78	77.40	77.92	79.91	81.46	82.23	82.46	81.07	81.69	83.39	85.09
20	79.05	67.03	77.39	77.98	79.97	81.50	82.24	82.29	80.99	81.81	83.47	---
21	79.05	66.81	77.40	78.05	80.03	81.54	82.25	82.32	80.91	81.85	83.55	85.13
22	79.05	67.52	77.42	78.12	80.03	81.59	82.27	82.26	80.86	81.92	83.64	85.15
23	79.07	68.41	77.45	78.17	80.14	81.64	82.29	82.22	80.80	81.95	83.69	85.18
24	79.10	68.98	77.48	78.35	80.19	81.67	82.30	82.17	80.75	81.99	83.75	85.21
25	79.12	69.85	77.49	78.44	80.24	81.71	82.31	82.14	80.71	82.05	83.81	85.23
26	79.14	70.63	77.52	78.47	80.28	81.74	82.32	82.10	80.70	82.11	83.86	85.26
27	79.17	71.34	77.52	78.73	80.34	81.76	82.33	82.06	80.70	82.15	83.93	85.29
28	79.19	72.02	77.50	78.82	80.40	81.82	82.35	82.04	80.69	82.20	83.98	85.31
29	79.22	72.59	77.49	78.91	---	81.86	82.36	82.02	80.70	82.23	84.03	85.32
30	79.24	73.17	77.50	78.99	---	81.88	82.38	81.99	80.71	82.27	84.05	85.32
31	79.26	---	77.52	79.05	---	81.91	---	81.97	---	82.31	84.08	---
MEAN	79.07	75.23	76.58	78.04	79.71	81.27	82.17	82.34	81.27	81.51	83.22	84.79
WTR YR 1994	MEAN 80.42	HIGHEST 66.77	LOWEST 85.32	SEPT. 29, 30, 1994								



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres. Owner: P.R. Aqueduct and Sewer Authority, Name: Sabana Hoyos.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90 ft (0-27.43 m), perforated. Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m) above mean sea level, from topographic map.

Measuring point: Top of casing wooden cover, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

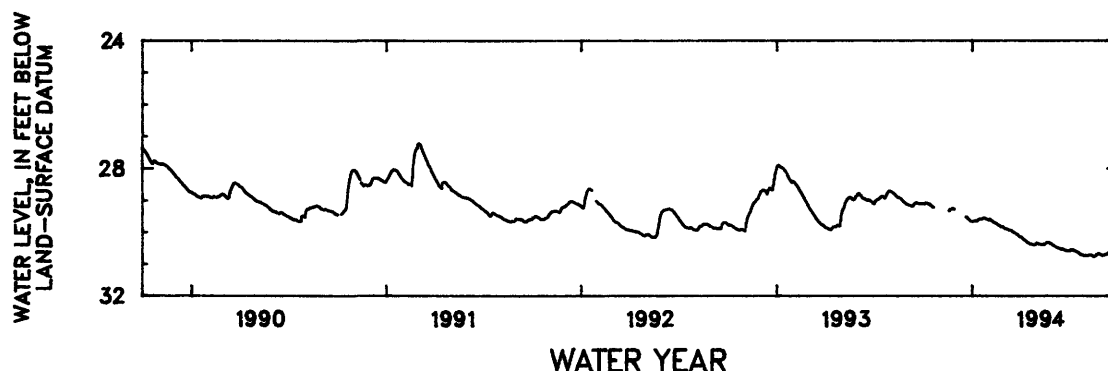
PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.50 m) below land-surface datum, Oct. 26, 1976; lowest water level recorded, 31.10 ft (9.48 m) below land-surface datum, July 31, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.10	---	---	29.66	29.62	29.85	30.15	30.35	30.40	30.59	30.73	30.73
2	29.10	---	---	29.66	29.61	29.87	30.14	30.34	30.42	30.58	30.72	30.73
3	29.12	---	---	29.65	29.61	29.88	30.15	30.35	30.43	30.58	30.73	30.72
4	29.11	---	---	29.65	29.59	29.90	30.16	30.36	30.44	30.57	30.74	30.71
5	29.09	---	---	29.65	29.62	29.90	30.19	30.37	30.45	30.57	30.74	30.71
6	29.08	---	---	29.64	29.63	29.89	30.20	30.38	30.45	30.56	30.73	30.71
7	29.07	---	---	29.64	29.64	29.90	30.22	30.38	30.47	30.56	30.72	30.70
8	29.08	---	---	29.65	29.65	29.91	30.23	30.38	30.48	30.55	30.71	30.69
9	29.09	---	---	29.65	29.67	29.92	30.25	30.39	30.49	30.56	30.71	30.68
10	29.10	---	---	29.65	29.68	29.92	30.26	30.39	30.50	30.57	30.71	30.68
11	29.10	---	---	29.64	29.69	29.94	30.27	30.40	30.50	30.58	30.72	30.66
12	29.11	---	---	29.61	29.70	29.94	30.29	30.40	30.51	30.59	30.72	30.66
13	29.11	---	---	29.60	29.71	29.94	30.30	30.40	30.52	30.59	30.73	30.66
14	29.13	---	---	29.59	29.71	29.95	30.31	30.39	30.52	30.60	30.73	30.66
15	29.14	---	---	29.58	29.72	29.95	30.33	30.38	30.53	30.61	30.75	30.66
16	29.16	---	---	29.58	29.74	29.96	30.34	30.39	30.54	30.62	30.76	30.65
17	29.17	---	---	29.58	29.75	29.97	30.35	30.39	30.53	30.63	30.77	30.65
18	29.18	---	---	29.58	29.76	29.99	30.35	30.36	30.53	30.63	30.76	30.66
19	29.20	29.33	---	29.59	29.78	30.00	30.37	30.35	30.53	30.64	30.75	30.66
20	29.21	29.30	---	29.58	29.79	30.02	30.38	30.33	30.53	30.65	30.74	30.67
21	29.22	29.28	29.53	29.57	29.79	30.02	30.38	30.32	30.54	30.68	30.72	30.67
22	---	29.26	29.54	29.56	29.81	30.03	30.38	30.32	30.55	30.69	30.70	30.67
23	---	29.26	29.55	29.56	29.82	30.03	30.39	30.32	30.56	30.70	30.71	30.67
24	---	29.26	29.57	29.55	29.83	30.05	30.39	30.33	30.57	30.71	30.70	30.68
25	---	29.26	29.58	29.56	29.84	30.06	30.39	30.33	30.58	30.71	30.68	30.69
26	---	29.25	29.60	29.57	29.84	30.07	30.40	30.34	30.58	30.72	30.67	30.69
27	---	29.26	29.62	29.58	29.84	30.08	30.40	30.36	30.58	30.73	30.68	30.68
28	---	29.26	29.64	29.58	29.83	30.09	30.40	30.36	30.59	30.73	30.68	30.66
29	---	29.28	29.65	29.59	---	30.11	30.39	30.36	30.59	30.73	30.69	30.66
30	---	---	29.66	29.60	---	30.13	30.37	30.37	30.59	30.74	30.70	30.66
31	---	---	29.66	29.61	---	30.14	---	30.39	---	30.73	30.72	---
MEAN	29.13	29.27	29.60	29.61	29.72	29.98	30.30	30.36	30.52	30.64	30.72	30.68

WTR YR 1994 MEAN 30.15 HIGHEST 29.07 OCT. 7, 8, 1993 LOWEST 30.78 AUG. 18, 1994



GROUND-WATER LEVELS

433

RIO CIBUCO BASIN

182615066235300. Local number, 211.

LOCATION.--Lat 18°26'15", long 66°23'53", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3. Owner: P.R. Aqueduct and Sewer Authority, Name: Rosario No. 2.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61.0 m), diameter 12 in (0.30 m) 200-250 ft (61.0-76.2 m), cased 12 in (0.30 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64.0-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61.0 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.15 ft (0.35 m) above land-surface datum.

REMARKS.--Recording observation well.

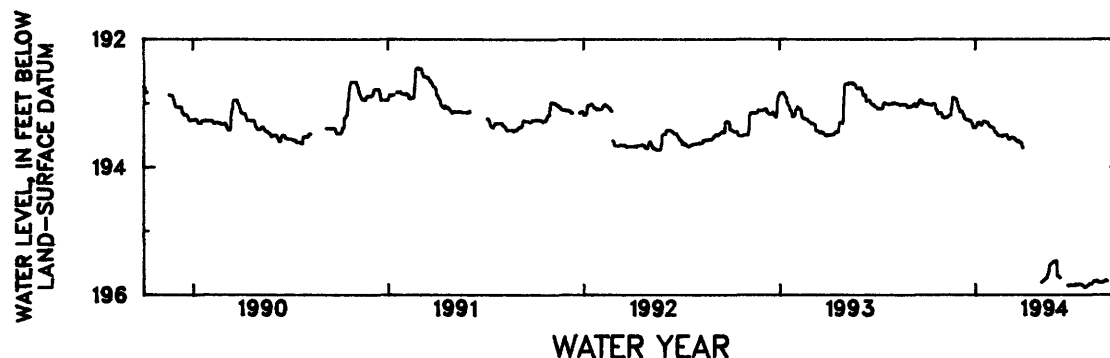
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.30 m) below land-surface datum, May 16, 1986; lowest water level recorded, 195.88 ft (59.7 m) below land-surface datum, July 22, 23, 24, 25, 26, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	193.01	193.21	193.09	193.38	193.38	193.49	---	---	195.46	195.85	195.83	195.77
2	193.01	193.21	193.12	193.36	193.38	193.51	---	---	195.52	195.85	195.83	195.78
3	193.01	193.22	193.13	193.35	193.39	193.54	---	---	195.71	195.85	195.83	195.78
4	193.01	193.23	193.13	193.33	193.39	193.56	---	195.80	195.71	195.84	195.82	195.78
5	193.02	193.22	193.13	193.30	193.39	193.56	---	195.79	195.71	195.84	195.82	---
6	193.02	193.22	193.12	193.30	193.43	193.56	---	195.79	195.71	195.85	195.83	---
7	193.02	193.22	193.13	193.30	193.45	193.56	---	195.78	195.73	195.84	195.82	---
8	193.02	193.22	193.15	193.30	193.46	193.54	---	195.77	195.73	195.83	195.80	---
9	193.02	193.22	193.17	193.31	193.46	193.54	---	195.76	---	195.84	195.79	---
10	193.02	193.21	193.18	193.31	193.46	193.54	---	195.76	---	195.84	195.79	---
11	193.02	193.20	193.22	193.34	193.49	193.54	---	195.75	---	195.84	195.79	---
12	193.03	193.19	193.23	193.34	193.50	193.54	---	195.74	---	195.84	195.79	---
13	193.01	193.18	193.25	193.34	193.50	193.54	---	195.74	---	195.83	195.78	---
14	193.01	193.18	193.25	193.31	193.50	193.55	---	195.73	---	195.83	195.78	---
15	193.01	193.18	193.26	193.29	193.50	193.55	---	195.69	---	195.83	195.79	---
16	193.01	193.18	193.26	193.28	193.51	193.55	---	195.68	---	195.83	195.78	---
17	193.02	193.07	193.26	193.28	193.51	193.57	---	195.67	---	195.83	195.78	---
18	193.03	193.02	193.25	193.28	193.51	193.57	---	195.60	---	195.84	195.80	---
19	193.09	192.91	193.26	193.29	193.51	193.59	---	195.54	---	195.84	195.80	---
20	193.10	192.91	193.27	193.29	193.52	193.59	---	195.53	---	195.85	195.80	---
21	193.12	192.91	193.27	193.29	193.52	193.60	---	195.52	---	195.86	195.80	---
22	193.16	192.92	193.27	193.30	193.50	193.60	---	195.51	---	195.87	195.80	---
23	193.16	192.92	193.27	193.30	193.50	193.59	---	195.51	195.85	195.88	195.80	---
24	193.16	192.92	193.29	193.30	193.50	193.60	---	195.50	195.85	195.88	195.80	---
25	193.15	192.93	193.31	193.32	193.50	193.61	---	195.49	195.85	195.88	195.80	---
26	193.15	192.93	193.33	193.35	193.50	193.61	---	195.48	195.85	195.88	195.80	---
27	193.15	192.97	193.37	193.35	193.50	193.62	---	195.48	195.85	195.86	195.80	---
28	193.15	192.99	193.38	193.35	193.49	193.62	---	195.48	195.84	195.86	195.79	---
29	193.15	193.04	193.37	193.36	---	193.67	---	195.47	195.85	195.86	195.79	---
30	193.17	193.05	193.38	193.37	---	193.68	---	195.47	195.85	195.85	195.78	---
31	193.21	---	193.38	193.37	---	193.70	---	195.47	---	195.84	195.78	---
MEAN	193.07	193.09	193.24	193.32	193.47	193.58	---	195.62	195.75	195.85	195.80	195.78

WTR YR 1994 MEAN 194.22 HIGHEST 192.91 NOV. 19, 20, 21, 22, 1993 LOWEST 195.88 JULY 22, 23, 24, 25, 26, 1994



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182515066194000. Local number, 212.

LOCATION.--Lat 18°25'15", long 66°19'40", Hydrologic Unit 21010002, 5.15 mi southwest of Dorado plaza, 0.49 mi north of Vega Alta plaza, and 1.04 mi northwest of Escuela Industrial para Mujeres. Owner: U.S. Geological Survey, WRD, Name: Ponderosa TW-1.

AQUIFER.--Aguada Limestone-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-136 ft (0-41.1 m), perforated 121-131 ft (36.9-39.9 m); bentonite packed 0.5-121 ft (0.15-36.9 m). Depth 136 ft (39.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 98.0 ft (29.9 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

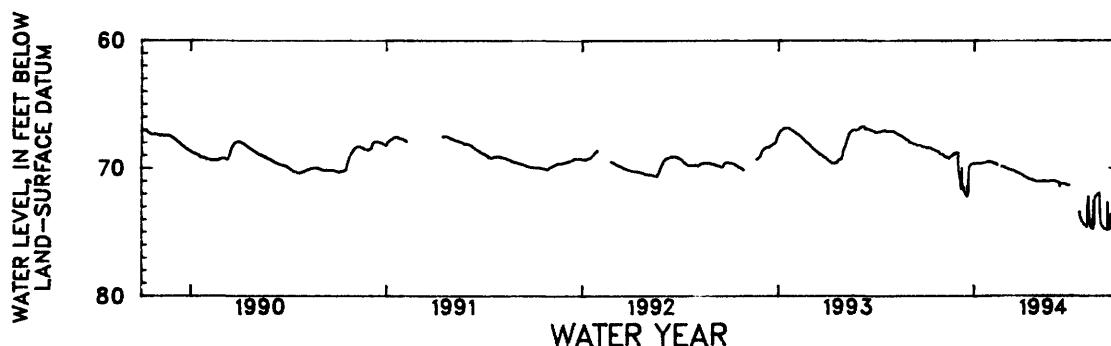
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 63.05 ft (19.22 m) below land-surface datum, July 15, 1987; lowest water level recorded, 75.03 ft (22.87 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68.39	68.93	68.82	69.63	69.50	69.97	70.53	71.02	71.00	---	72.39	74.73
2	68.40	68.94	69.47	69.63	69.50	70.00	70.54	71.01	71.02	---	72.23	74.76
3	68.41	68.95	70.28	69.63	69.51	70.00	70.56	71.01	71.05	---	73.75	74.78
4	68.43	68.99	70.42	69.63	69.54	70.03	70.59	71.01	71.05	---	74.41	74.80
5	68.43	69.02	70.67	69.62	69.55	70.04	70.64	71.01	71.05	---	74.57	74.83
6	68.42	69.07	70.77	69.62	69.56	70.06	70.65	71.01	71.06	---	74.63	74.87
7	68.40	69.11	71.37	69.62	69.60	70.09	70.69	71.01	71.14	---	74.70	72.64
8	68.41	69.14	71.63	69.62	69.60	70.10	70.69	71.01	71.12	---	73.99	74.63
9	68.41	69.15	69.94	69.62	69.61	70.10	70.72	70.98	71.11	---	74.69	74.73
10	68.42	69.16	71.54	69.62	69.63	70.12	70.74	70.98	71.43	---	74.74	74.80
11	68.44	69.16	71.65	69.62	69.64	70.13	70.75	70.98	71.21	---	72.51	73.89
12	68.45	69.17	71.75	69.62	69.67	70.14	70.80	70.99	71.20	---	74.54	74.62
13	68.50	69.18	71.45	69.62	69.69	70.15	70.81	70.99	71.20	---	72.47	73.55
14	68.52	69.19	71.82	69.63	69.74	70.16	70.82	70.99	71.20	---	72.27	74.71
15	68.53	69.25	71.97	69.61	---	70.17	70.84	71.01	71.20	---	72.22	74.80
16	68.56	69.18	72.02	69.61	---	70.17	70.85	71.02	71.20	73.44	72.15	74.82
17	68.56	69.13	72.08	69.61	---	70.19	70.85	71.03	71.21	73.74	72.11	74.84
18	68.58	69.06	72.16	69.61	---	70.22	70.86	71.03	71.21	73.94	72.07	74.86
19	68.61	69.06	72.22	69.58	---	70.25	70.87	71.03	71.22	73.87	72.03	73.92
20	68.64	69.03	71.32	69.58	---	70.28	70.89	71.02	71.23	74.05	72.00	74.70
21	68.66	68.99	72.03	69.56	---	70.31	70.93	71.01	71.25	74.19	71.98	74.78
22	68.68	68.94	70.02	69.54	69.85	70.32	70.93	70.99	71.26	74.23	71.94	74.84
23	68.70	68.90	69.90	69.53	69.85	70.34	70.95	70.98	71.29	74.28	73.26	74.89
24	68.71	68.86	69.79	69.52	69.87	70.36	70.96	70.97	71.30	74.33	74.17	74.90
25	68.72	68.84	69.76	69.50	69.88	70.38	70.98	70.97	71.32	74.41	74.30	74.94
26	68.76	68.94	69.72	69.49	69.89	70.39	71.01	70.97	71.32	74.48	74.46	74.86
27	68.78	68.85	69.68	69.49	69.92	70.42	71.02	70.98	71.32	74.51	74.54	74.92
28	68.88	68.82	69.66	69.49	69.95	70.43	71.03	70.98	---	74.56	74.58	74.96
29	68.87	68.80	69.64	69.49	---	70.44	71.03	70.98	---	74.58	74.64	74.97
30	68.89	68.82	69.63	69.49	---	70.47	71.04	70.98	---	74.60	74.72	75.01
31	68.91	---	69.63	69.49	---	70.51	---	70.99	---	73.04	74.75	---
MEAN	68.58	69.02	70.74	69.58	69.69	70.22	70.82	71.00	71.19	74.14	73.48	74.64

WTR YR 1994 MEAN 70.99 HIGHEST 68.39 OCT. 1, 1993 LOWEST 75.03 SEPT. 30, 1994



GROUND-WATER LEVELS

435

RIO CIBUCO BASIN

182330066185700. Local number, 213.

LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823. Owner: P.R. Aqueduct and Sewer Authority, Name: Pampano No. 2.

AQUIFER.--Rio Indio Limestone-Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft (0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.30 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6-100.6 m). Depth 330 ft (100.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 394 ft (120 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Recording observation well.

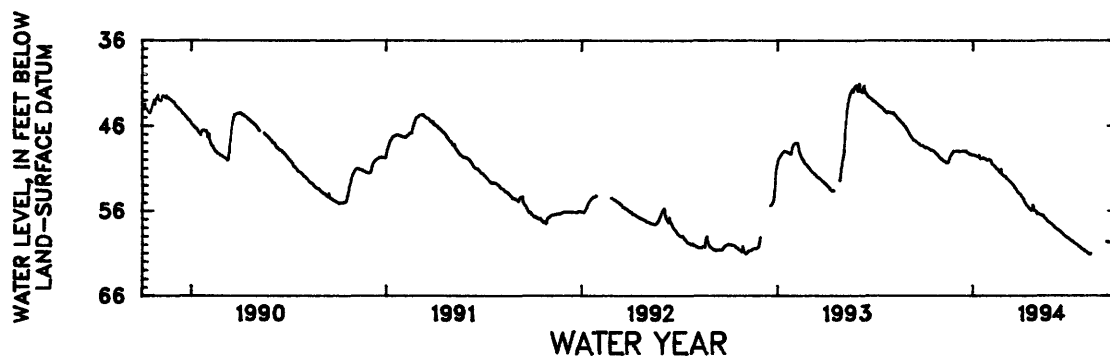
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.50 m) below land-surface datum, Dec. 6, 1985; lowest water level recorded, 61.17 ft (18.6 m) below land-surface datum, Aug. 8, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.39	49.74	48.94	49.42	49.93	51.95	54.20	56.28	57.79	59.37	60.81	---
2	48.48	49.82	48.91	49.42	49.97	51.93	54.33	56.35	57.84	59.43	60.85	---
3	48.46	49.87	48.92	49.40	50.03	51.94	54.39	56.41	57.93	59.48	60.97	---
4	48.48	49.98	48.92	49.43	50.08	51.99	54.48	56.34	57.99	59.52	61.01	---
5	48.62	49.97	48.92	49.45	50.18	52.14	54.58	56.37	58.02	59.60	61.03	---
6	48.54	50.07	48.96	49.45	50.39	52.22	54.61	56.41	58.09	59.58	61.13	---
7	48.53	50.10	49.02	49.51	50.51	52.31	54.88	56.49	58.15	59.65	61.15	---
8	48.53	50.18	49.03	49.54	50.55	52.30	55.00	56.49	58.22	59.67	61.17	59.61
9	48.58	50.14	49.00	49.59	50.59	52.37	55.07	56.46	58.22	59.79	61.07	59.61
10	48.64	50.16	48.98	49.62	50.64	52.49	55.18	56.51	58.25	59.82	61.06	59.60
11	48.66	50.26	48.97	49.58	50.72	52.57	55.27	56.58	58.32	59.85	---	59.64
12	48.70	50.29	48.99	49.52	50.78	52.61	55.35	56.55	58.36	59.89	---	59.66
13	48.78	50.36	48.96	49.44	50.80	52.69	55.43	56.54	58.42	59.94	---	59.68
14	48.80	50.35	48.93	49.74	50.97	52.75	55.46	56.76	58.49	59.97	---	59.68
15	48.86	50.34	48.94	49.87	50.99	52.79	55.55	56.89	58.54	60.00	---	59.69
16	48.85	50.25	48.94	49.84	51.08	52.88	55.66	56.93	58.61	60.03	---	59.73
17	48.86	50.20	48.98	49.87	51.11	52.93	55.72	56.94	58.63	60.12	---	59.78
18	48.88	49.96	48.94	49.82	51.16	53.01	55.77	56.94	58.70	60.20	---	59.78
19	48.91	49.78	49.03	49.82	51.29	53.15	55.87	57.06	58.77	60.23	---	59.77
20	48.93	49.56	48.95	49.79	51.38	53.31	55.93	57.16	58.85	60.26	---	59.82
21	49.03	49.46	49.08	49.74	51.48	53.32	55.97	57.19	58.89	60.32	---	59.81
22	49.09	49.38	49.11	49.78	51.55	53.44	55.91	57.31	58.95	60.40	---	59.79
23	49.18	49.19	49.17	49.84	51.04	53.49	55.43	57.34	59.02	60.43	---	59.80
24	49.23	49.22	49.19	49.85	51.56	53.66	55.30	57.37	59.05	60.55	---	59.82
25	49.26	49.07	49.23	49.86	51.74	53.76	55.72	57.43	59.09	60.57	---	59.81
26	49.29	48.98	49.32	49.87	51.77	53.83	55.93	57.51	59.14	60.59	---	59.82
27	49.37	49.01	49.38	49.97	51.86	53.93	55.95	57.54	59.18	60.60	---	59.84
28	49.46	49.02	49.35	50.05	51.90	53.97	55.99	57.55	59.23	60.62	---	59.81
29	49.58	48.99	49.33	49.99	---	54.00	56.00	57.61	59.27	60.78	---	59.78
30	49.65	48.96	49.35	50.00	---	54.03	56.13	57.67	59.32	60.79	---	59.79
31	49.72	---	49.41	49.99	---	54.10	---	57.74	---	60.79	---	---
MEAN	48.91	49.76	49.07	49.71	50.93	52.96	55.37	56.93	58.58	60.09	61.02	59.74

WTR YR 1994 MEAN 53.92 HIGHEST 48.24 OCT. 1, 1993 LOWEST 61.17 AUG. 8, 1994



GROUND-WATER LEVELS
RIO DE LA PLATA BASIN

182746066170800. Local number, 214.

LOCATION.--Lat 18°27'46", long 66°17'08", Hydrologic Unit 210100002, 1.58 mi west of Dorado plaza, 0.59 mi southeast of Dorado Airport main gate, and 3.76 mi north of Hwy 2 km 25.2. Owner: Dorado Beach Hotel, Name: Dorado Beach No. 7.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 18 in (0.46 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 26.0 ft (8.0 m) above mean sea level, from topographic map. Prior to this report, elevation incorrectly used was 39.0 ft (11.9 m). Measuring point: Hole on side of casing, 1.10 ft (0.34 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

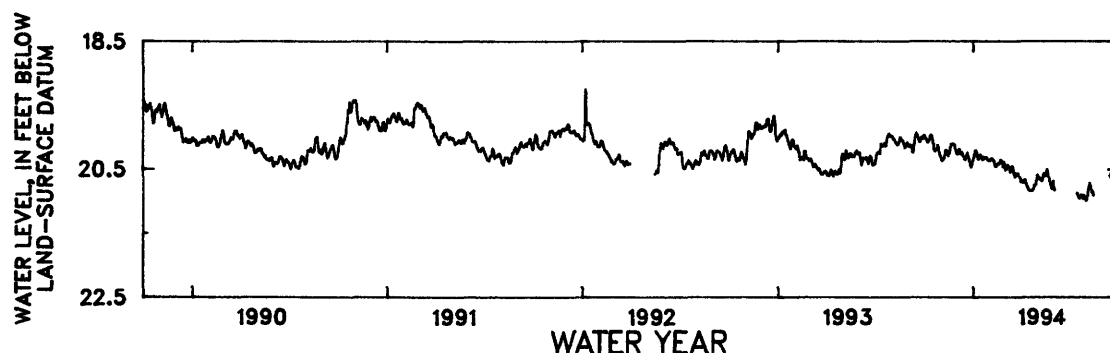
PERIOD OF RECORD.-- November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.23 ft (5.56 m) below land-surface datum, Nov. 16, 1985; lowest water level recorded, 21.01 ft (6.40 m) below land-surface datum, July 23, 24, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.97	20.30	20.25	20.35	20.37	20.44	20.70	20.59	20.82	---	20.96	---
2	20.00	20.32	20.27	20.31	20.34	20.51	20.69	20.61	20.83	---	20.91	---
3	20.02	20.36	20.23	20.29	20.33	20.50	20.68	20.63	---	---	20.83	---
4	20.02	20.37	20.22	20.24	20.34	20.50	20.71	20.64	---	---	20.80	---
5	20.04	20.37	20.19	20.20	20.33	20.47	20.71	20.66	---	---	20.76	---
6	20.05	20.33	20.19	20.21	20.34	20.43	20.68	20.64	---	---	20.71	---
7	20.08	20.33	20.23	20.23	20.36	20.43	20.66	20.66	---	---	20.76	---
8	20.07	20.31	20.26	20.28	20.36	20.46	20.72	20.68	---	---	20.78	---
9	20.06	20.26	20.25	20.31	20.38	20.47	20.71	20.68	---	---	20.83	---
10	20.04	20.20	20.24	20.34	20.42	20.46	20.74	20.64	---	---	20.85	---
11	20.01	20.20	20.24	20.34	20.45	20.55	20.78	20.61	---	---	20.87	---
12	19.98	20.21	20.28	20.34	20.46	20.52	20.77	20.58	---	---	20.86	---
13	19.96	20.26	20.30	20.30	20.44	20.48	20.82	20.56	---	20.88	20.91	20.60
14	19.97	20.27	20.30	20.27	20.41	20.46	20.82	20.58	---	20.89	---	20.63
15	19.99	20.29	20.34	20.28	20.41	20.45	20.83	20.60	---	20.92	---	20.56
16	20.04	20.25	20.34	20.30	20.43	20.48	20.84	20.61	---	20.93	---	20.53
17	20.08	20.25	20.35	20.32	20.40	20.53	20.84	20.59	---	20.95	---	20.58
18	20.11	20.21	20.32	20.35	20.41	20.57	20.84	20.52	---	20.96	---	20.59
19	20.19	20.16	20.29	20.34	20.41	20.62	20.84	20.50	---	20.92	---	20.58
20	20.21	20.10	20.25	20.30	20.39	20.61	20.83	20.56	---	20.90	---	20.58
21	20.22	20.10	20.24	20.31	20.35	20.56	20.84	20.59	---	20.90	---	20.61
22	20.20	20.10	20.28	20.32	20.38	20.58	20.81	20.64	---	20.92	---	20.60
23	20.19	20.12	20.31	20.33	20.37	20.59	20.81	20.69	---	20.94	---	20.61
24	20.18	20.10	20.34	20.33	20.38	20.57	20.77	20.69	---	20.96	---	20.64
25	20.15	20.11	20.38	20.31	20.46	20.59	20.74	20.75	---	20.95	---	20.66
26	20.12	20.11	20.39	20.31	20.44	20.57	20.75	20.76	---	20.90	---	20.65
27	20.15	20.12	20.43	20.33	20.38	20.61	20.74	20.80	---	20.93	---	20.60
28	20.20	20.18	20.47	20.35	20.40	20.62	20.67	20.81	---	20.95	---	20.61
29	20.24	20.21	20.46	20.36	---	20.64	20.66	20.72	---	20.97	---	20.61
30	20.27	20.24	20.40	20.36	---	20.69	20.60	20.68	---	20.99	---	20.60
31	20.29	---	20.37	20.35	---	20.70	---	20.78	---	20.98	---	---
MEAN	20.10	20.22	20.30	20.31	20.39	20.54	20.75	20.65	20.83	20.93	20.83	20.60

WTR YR 1994 MEAN 20.47 HIGHEST 19.94 OCT. 12, 1993 LOWEST 21.01 JULY 23, 24, 1994



GROUND-WATER LEVELS

437

RIO DE LA PLATA BASIN

182530066135400. Local number, 216.

LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca U.S. Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7. Owner: P.R. Aqueduct and Sewer Authority, Name: Pozo Navy-Campanillas.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.10 m), cased 12 in (0.30 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.10-32.3 m), diameter 10 in (0.25 m) 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

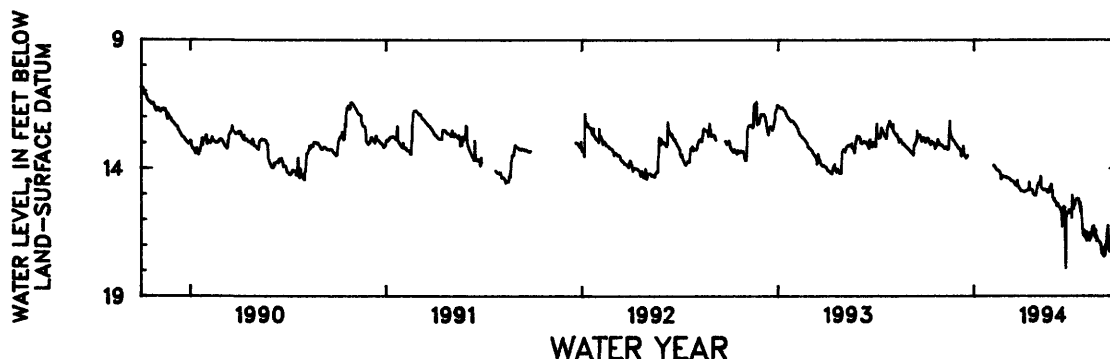
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m) below land-surface datum, June 23, 1987; lowest water level recorded, 18.4 ft (5.61 m) below land-surface datum, Sept. 24, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.86	13.08	13.15	---	---	14.34	14.89	14.60	15.32	15.63	16.80	17.08
2	12.98	13.09	13.19	---	---	14.33	14.90	14.55	15.30	15.96	16.60	17.44
3	12.99	13.13	13.21	---	---	14.35	14.91	14.56	15.34	15.03	16.83	16.96
4	12.92	13.15	13.24	---	---	14.37	14.91	14.60	15.46	15.45	16.58	17.20
5	12.83	13.17	13.24	---	---	14.37	14.93	14.29	15.40	15.39	16.85	16.56
6	12.87	13.20	13.25	---	---	14.38	14.92	14.76	15.38	15.59	16.49	16.49
7	12.83	13.22	13.32	---	13.89	14.39	14.89	14.77	15.43	15.38	16.75	16.23
8	12.85	13.23	13.53	---	13.92	14.39	14.88	14.81	15.52	15.43	16.47	16.81
9	12.96	13.18	13.41	---	13.94	14.42	14.89	14.81	15.51	15.25	16.36	16.98
10	13.01	13.16	13.42	---	13.98	14.44	14.88	14.85	15.55	15.23	16.28	17.27
11	12.99	13.18	13.32	---	14.00	14.48	14.86	14.86	15.60	15.20	16.54	16.65
12	13.09	13.20	13.11	---	14.05	14.49	14.86	14.84	15.64	15.19	16.23	17.23
13	12.94	13.27	13.46	---	14.06	14.50	14.86	14.83	15.60	15.19	16.67	16.86
14	12.95	13.24	13.50	---	14.06	14.50	14.52	14.83	16.30	15.22	16.35	17.28
15	12.99	13.10	13.52	---	14.07	14.50	14.79	14.87	15.73	15.20	16.72	17.14
16	13.03	12.38	13.55	---	14.09	14.52	14.83	14.86	15.59	15.41	16.39	17.32
17	13.04	12.13	13.60	---	14.10	14.55	14.84	14.91	15.49	15.32	16.87	17.27
18	13.00	12.66	13.56	---	14.13	14.60	14.85	14.85	15.52	15.70	16.66	16.68
19	13.08	12.72	13.53	---	14.17	14.65	14.87	14.95	15.53	15.43	16.83	18.27
20	13.22	12.77	13.50	---	14.41	14.65	14.86	14.83	16.65	15.74	16.79	17.68
21	13.18	12.84	---	---	14.41	14.65	15.00	14.88	17.95	15.95	16.85	17.51
22	13.14	12.88	---	---	14.28	14.70	15.00	14.91	15.89	16.37	16.86	18.29
23	13.05	12.91	---	---	14.28	14.45	15.05	14.70	15.75	16.57	16.93	17.54
24	13.09	12.91	---	---	14.31	14.64	15.06	14.85	15.72	16.63	16.91	18.40
25	12.86	12.96	---	---	14.33	14.71	15.06	14.61	15.71	16.40	16.97	18.08
26	12.92	12.97	---	---	14.33	14.77	15.07	14.93	15.76	16.69	17.19	17.66
27	12.99	13.02	---	---	14.33	14.80	14.94	14.86	15.62	16.45	17.33	16.84
28	13.03	13.06	---	---	14.33	14.83	14.79	15.17	15.65	16.75	17.22	16.87
29	13.05	13.09	---	---	---	14.87	14.70	15.17	15.63	16.72	17.40	16.66
30	13.09	13.11	---	---	---	14.90	14.65	15.24	15.76	16.84	17.09	16.56
31	13.10	---	---	---	---	14.89	---	15.20	---	16.47	17.47	---
MEAN	13.00	13.00	13.38	---	14.16	14.56	14.88	14.83	15.71	15.80	16.78	17.19

WTR YR 1994 MEAN 14.91 HIGHEST 12.11 NOV. 17, 1993 LOWEST 18.40 SEPT. 24, 1994



GROUND-WATER LEVELS

RIO DE LA PLATA BASIN

182655066142400. Local number, 217.

LOCATION.--Lat 18°26'55", long 66°14'24", Hydrologic Unit 21010005, 4.00 mi northeast of Toa Alta plaza, 3.40 mi northwest of Hwy 2 km 17.7, and 3.49 mi northwest of Sabana Seca U.S. Naval Radio Station. Owner: U.S. Geological Survey, WRD, Name: Monserrate TW-2.

AQUIFER.--Alluvial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80 ft (24.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 3.30 ft (1.00 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

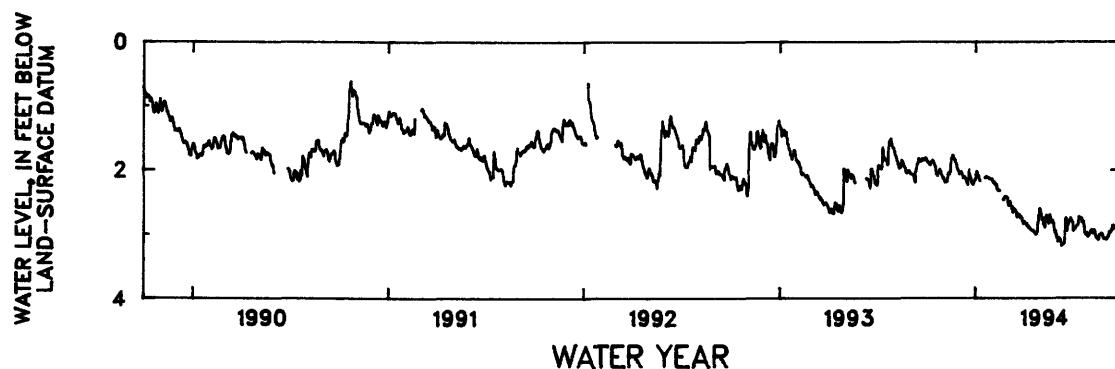
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft (0.006 m) below land-surface datum, May 16, 1986; lowest water level recorded, 3.21 ft (0.98 m) below land-surface datum, June 9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.82	2.12	2.03	2.12	2.15	2.43	2.80	2.61	3.06	2.83	3.00	3.08
2	1.85	2.14	2.06	2.08	2.18	2.50	2.81	2.65	3.06	2.96	2.98	3.08
3	1.87	2.17	2.04	2.06	2.19	2.55	2.83	2.68	3.12	2.94	2.96	3.06
4	1.88	2.19	2.05	2.02	2.21	2.54	2.84	2.77	3.11	2.93	2.94	3.04
5	1.88	2.19	2.02	2.05	2.19	2.51	2.84	2.77	3.05	2.91	2.95	3.03
6	1.89	2.17	2.04	2.08	2.22	2.49	2.83	2.74	3.08	2.90	2.93	3.03
7	1.91	2.18	2.07	2.13	2.23	2.53	2.87	2.83	3.08	2.88	2.98	2.95
8	1.91	2.18	2.12	2.15	2.23	2.56	2.87	2.85	3.09	2.87	2.99	2.98
9	1.92	2.12	2.12	2.17	2.23	2.60	2.87	2.86	3.12	2.86	2.97	2.96
10	1.88	2.08	2.12	---	2.30	2.57	2.90	2.89	3.19	2.85	2.93	2.96
11	1.88	2.06	2.10	---	2.30	2.66	2.90	2.75	3.17	2.84	2.96	2.93
12	1.86	2.04	2.13	---	2.32	2.66	2.90	2.71	3.16	2.73	3.00	2.92
13	1.85	2.05	2.14	---	2.32	2.60	2.92	2.70	3.16	2.73	3.04	2.86
14	1.87	2.06	2.16	---	2.32	2.61	2.93	2.75	3.15	2.74	3.06	2.92
15	1.89	2.02	2.19	---	2.32	2.61	2.94	2.79	3.14	2.74	3.06	2.86
16	1.91	1.91	2.20	---	---	2.63	2.94	2.81	3.12	2.76	3.06	2.87
17	1.93	1.82	2.23	---	---	2.65	2.95	2.83	2.76	2.75	3.08	2.90
18	1.95	1.81	2.13	---	---	2.69	2.94	2.75	2.74	2.81	3.09	2.89
19	2.03	1.79	2.09	2.12	---	2.73	2.95	2.69	2.75	2.78	3.03	2.89
20	2.06	1.77	1.99	2.11	---	2.71	2.96	2.73	2.78	2.80	3.01	2.90
21	2.09	1.80	2.07	2.10	---	2.68	2.98	2.77	2.96	2.82	3.01	2.88
22	2.05	1.81	2.11	2.12	2.46	2.72	2.97	2.81	2.85	2.89	3.01	2.88
23	2.05	1.85	2.15	2.12	2.44	2.69	3.00	2.79	2.83	2.97	2.99	2.87
24	2.05	1.84	2.20	2.12	2.42	2.71	3.00	2.78	2.82	3.00	2.99	2.89
25	2.00	1.87	2.19	2.12	2.42	2.74	2.96	2.83	2.78	3.01	3.00	2.87
26	1.99	1.89	2.21	2.13	2.42	2.72	2.96	2.82	2.78	2.99	3.04	2.78
27	2.02	1.91	2.23	2.14	2.42	2.75	2.83	2.87	2.74	2.98	3.07	2.65
28	2.04	1.97	2.21	2.14	2.43	2.75	2.71	2.94	2.76	2.98	3.07	2.63
29	2.08	1.99	2.17	2.14	---	2.80	2.70	2.97	2.79	3.04	3.07	2.58
30	2.10	2.01	2.16	2.14	---	2.83	2.59	2.95	2.81	3.03	3.07	2.53
31	2.13	---	2.16	2.14	---	2.79	---	3.01	---	3.02	3.07	---
MEAN	1.96	1.99	2.13	2.11	2.31	2.65	2.88	2.80	2.97	2.88	3.01	2.89

WTR YR 1994 MEAN 2.56 HIGHEST 1.70 NOV. 19, 20, 1993 LOWEST 3.21 JUNE 9, 1994



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182623066111000. Local number, 218.

LOCATION.--Lat 18°26'23", long 66°11'10", Hydrologic Unit 21010005, 3.30 mi northwest of Bayamón plaza, 1.78 mi south of Hwy 165 km 26.5, and 2.38 mi northeast of Hwy 2 km 16.2. Owner: P.R. Aqueduct and Sewer Authority, Name: Levittown No. 7.

AQUIFER.--Alluvial deposits-Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on pump base, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

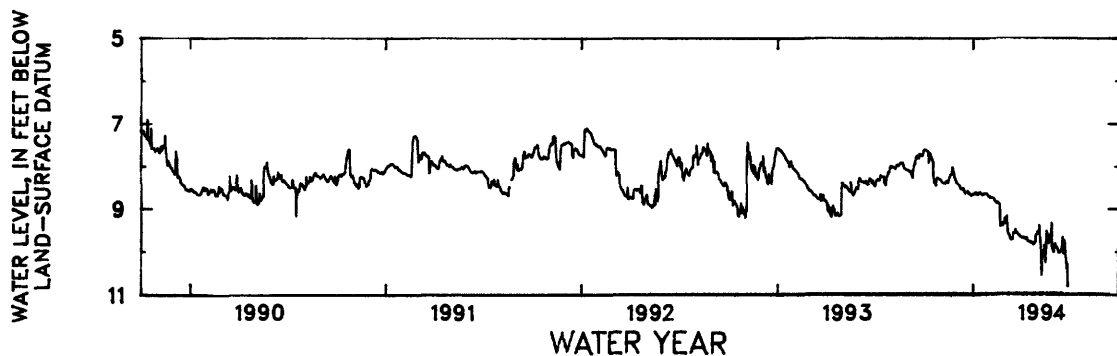
PERIOD OF RECORD.--October 1985 to June 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.94 ft (1.81 m) below land-surface datum, Sept. 20, 1989; lowest water level recorded, 10.83 ft (3.30 m) below land-surface datum, June 27, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.61	8.30	8.38	8.65	8.72	9.20	9.65	9.52	9.99	---	---	---
2	7.60	8.31	8.40	8.65	8.70	9.33	9.66	9.52	9.82	---	---	---
3	7.59	8.35	8.40	8.61	8.72	9.21	9.67	9.51	9.80	---	---	---
4	7.60	8.37	8.42	8.61	8.72	9.18	9.67	9.36	9.89	---	---	---
5	7.60	8.38	8.43	8.62	8.72	9.16	9.65	9.55	9.88	---	---	---
6	7.62	8.39	8.45	8.64	8.73	9.48	9.66	9.67	9.89	---	---	---
7	7.63	8.40	8.49	8.61	8.73	9.55	9.66	9.78	9.90	---	---	---
8	7.63	8.40	8.52	8.63	8.73	9.58	9.69	10.04	9.94	---	---	---
9	7.64	8.40	8.51	8.66	8.75	9.60	9.70	10.56	10.01	---	---	---
10	7.92	8.38	8.51	8.66	8.78	9.60	9.70	10.13	9.97	---	---	---
11	7.84	8.36	8.52	8.62	8.81	9.68	9.66	9.95	9.99	---	---	---
12	7.67	8.35	8.55	8.61	8.82	9.69	9.72	10.00	10.01	---	---	---
13	7.68	8.34	8.50	8.62	8.83	9.71	9.75	10.03	10.00	---	---	---
14	7.74	8.38	8.54	8.60	8.82	9.67	9.74	9.83	9.98	---	---	---
15	7.78	8.38	8.58	8.61	8.83	9.68	9.74	9.87	9.94	---	---	---
16	7.82	8.33	8.60	8.64	8.86	9.70	9.76	10.26	9.83	---	---	---
17	7.85	8.30	8.64	8.65	8.85	9.53	9.76	9.86	9.64	---	---	---
18	7.90	8.24	8.61	8.67	8.87	9.55	9.77	9.49	9.74	---	---	---
19	8.24	8.22	8.60	8.66	8.89	9.56	9.78	9.60	10.05	---	---	---
20	8.31	8.18	8.59	8.65	9.16	9.55	9.76	9.65	9.71	---	---	---
21	8.38	8.19	8.57	8.63	9.41	9.46	9.77	9.78	9.75	---	---	---
22	8.41	8.19	8.59	8.64	9.37	9.56	9.80	9.80	9.99	---	---	---
23	8.45	8.02	8.63	8.63	9.34	9.54	9.82	9.59	10.13	---	---	---
24	8.33	8.01	8.61	8.63	9.32	9.55	9.82	9.75	10.25	---	---	---
25	8.28	8.12	8.64	8.63	9.37	9.55	9.77	9.69	10.39	---	---	---
26	8.26	8.15	8.64	8.64	9.31	9.59	9.79	9.70	10.28	---	---	---
27	8.26	8.23	8.66	8.65	9.32	9.60	9.74	9.31	10.80	---	---	---
28	8.27	8.27	8.68	8.66	9.31	9.59	9.59	9.88	---	---	---	---
29	8.29	8.30	8.66	8.69	---	9.62	9.59	9.93	---	---	---	---
30	8.30	8.33	8.64	8.71	---	9.64	9.57	9.95	---	---	---	---
31	8.31	---	8.64	8.71	---	9.65	---	10.00	---	---	---	---
MEAN	7.96	8.29	8.55	8.64	8.96	9.53	9.71	9.79	9.98	---	---	---

WTR YR 1994 MEAN 9.03 HIGHEST 7.56 OCT. 4, 5, 9, 1993 LOWEST 10.83 JUNE 27, 1994



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219.

LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan Military Res. main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of P.R. National Cemetery. Owner: U.S. Department of Defense, Name: Ft. Buchanan No. 1, Buchanan Park well.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-685 ft (14.0-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.75 ft (0.23 m) above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m) above land-surface datum.

REMARKS.--Recording observation well.

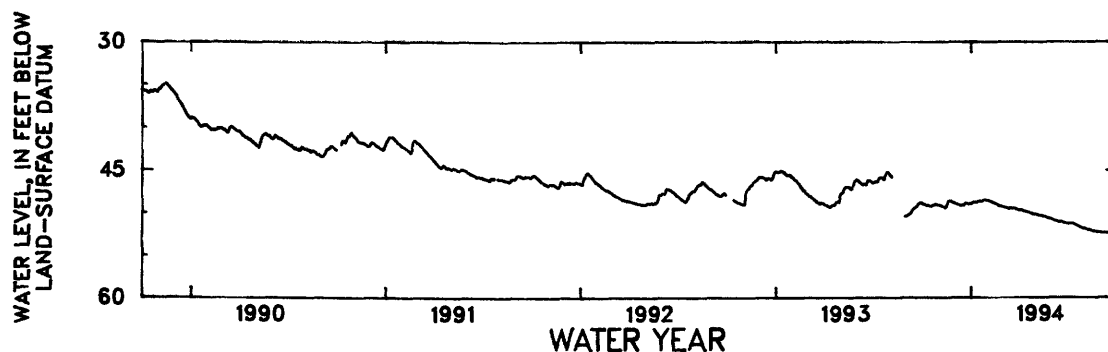
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.97 ft (10.66 m) below land-surface datum, Nov. 12, 13, 14, 1989; lowest water level recorded, 52.66 ft (16.0 m) below land-surface datum, Sept. 27, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.99	49.06	48.86	48.90	48.51	49.30	49.68	50.15	50.79	51.31	51.85	52.36
2	48.98	49.09	48.89	48.83	48.54	49.33	49.69	50.18	50.82	51.27	51.86	52.39
3	48.93	49.11	48.93	48.75	48.59	49.33	49.68	50.20	50.84	51.28	51.91	52.39
4	48.93	49.15	48.94	48.71	48.61	49.35	49.64	50.22	50.87	51.27	51.93	52.40
5	48.99	49.16	48.95	48.71	48.62	49.38	49.66	50.25	50.90	51.27	51.96	52.40
6	49.02	49.19	48.98	48.71	48.64	49.40	49.72	50.28	50.92	51.22	51.99	52.39
7	49.04	49.24	49.03	48.71	48.66	49.41	49.74	50.29	50.95	51.23	52.01	52.36
8	49.07	49.29	49.05	48.73	48.70	49.41	49.76	50.30	50.97	51.26	52.03	52.36
9	49.11	49.30	49.06	48.75	48.72	49.44	49.78	50.31	50.98	51.26	51.99	52.39
10	49.14	49.32	49.11	48.77	48.77	49.49	49.79	50.32	50.99	51.27	52.00	52.37
11	49.10	49.35	49.13	48.74	48.81	49.52	49.83	50.33	51.01	51.28	52.03	52.37
12	49.10	49.38	49.13	48.69	48.83	49.51	49.85	50.33	51.06	51.33	52.05	52.38
13	49.12	49.39	49.10	48.62	48.85	49.49	49.86	50.33	51.08	51.36	52.09	52.41
14	49.17	49.33	49.07	48.61	48.86	49.47	49.86	50.37	51.12	51.39	52.10	52.43
15	49.20	49.23	49.08	48.61	48.91	49.47	49.88	50.39	51.13	51.42	52.13	52.44
16	49.20	49.03	49.09	48.62	48.96	49.46	49.91	50.41	51.09	51.46	52.17	52.49
17	49.22	48.84	49.11	48.61	48.98	49.47	49.91	50.42	51.05	51.48	52.19	52.52
18	49.22	48.70	49.10	48.60	49.01	49.47	49.93	50.41	51.04	51.53	52.18	52.51
19	49.17	48.61	48.97	48.63	49.05	49.48	49.96	50.45	51.07	51.55	52.18	52.50
20	49.12	48.57	48.89	48.65	49.09	49.46	49.98	50.48	51.08	51.58	52.21	52.53
21	49.08	48.59	48.87	48.61	49.12	49.45	50.02	50.52	51.10	51.62	52.22	52.56
22	49.05	48.61	48.86	48.58	49.15	49.44	50.05	50.56	51.15	51.66	52.23	52.57
23	49.05	48.63	48.88	48.52	49.20	49.46	50.06	50.58	51.18	51.70	52.25	52.58
24	49.04	48.63	48.89	48.48	49.23	49.51	50.08	50.58	51.19	51.73	52.26	52.63
25	48.99	48.67	48.89	48.46	49.25	49.55	50.09	50.61	51.22	51.75	52.30	52.63
26	48.97	48.71	48.93	48.44	49.25	49.58	50.14	50.64	51.23	51.78	52.31	52.63
27	48.99	48.76	48.96	48.46	49.26	49.60	50.18	50.67	51.24	51.80	52.31	52.65
28	49.01	48.79	48.93	48.50	49.28	49.62	50.16	50.68	51.25	51.83	52.31	52.64
29	49.07	48.79	48.90	48.52	---	49.65	50.16	50.70	51.27	51.86	52.33	52.63
30	49.08	48.82	48.91	48.52	---	49.66	50.14	50.72	51.29	51.86	52.35	52.64
31	49.06	---	48.94	48.52	---	49.66	---	50.75	---	51.83	52.35	---
MEAN	49.07	48.98	48.98	48.63	48.91	49.48	49.91	50.43	51.06	51.50	52.13	52.48

WTR YR 1994 MEAN 50.14 HIGHEST 48.41 JAN. 26, 1994 LOWEST 52.66 SEPT. 27, 1994



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182413066044000. Local number, 220.

LOCATION.--Lat 18°24'13", long 66°04'40", Hydrologic Unit 21010005, 3.85 mi southeast of Cataño plaza, 0.86 mi east of Escuela Gabriela Mistral, and 1.26 mi south of Nemesio Canales Public Housing. Owner: P.R. Aqueduct and Sewer Authority, Name: Parque San Luis Rey-Américo Miranda

AQUIFER.--Surficial Deposits-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in (0.25 m), cased 8 in (0.20 m) 0-166 ft (0-50.6 m), perforated 39-166 ft (11.9-50.6 m). Depth 166 ft (50.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 16.4 ft (5.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 1986 to June 1994, discontinued.

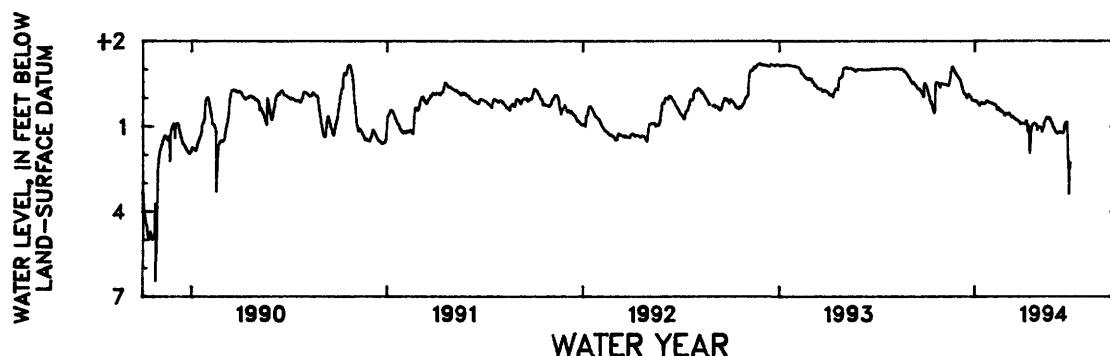
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.99 ft (+0.91 m) above land-surface datum, Feb. 6, May 8, 9, 1986; lowest water level recorded, 6.48 ft (1.98 m) below land-surface datum, Oct. 26, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+.43	+.49	+.71	.09	.17	.55	.89	1.02	1.20	---	---	---
2	+.39	+.48	+.69	.12	.21	.54	.90	1.02	1.24	---	---	---
3	+.35	+.48	+.65	.11	.20	.57	.91	1.04	1.25	---	---	---
4	+.29	+.48	+.65	.11	.21	.57	.90	1.05	1.22	---	---	---
5	+.23	+.48	+.58	.14	.21	.54	.89	1.09	1.23	---	---	---
6	+.13	+.47	+.53	.16	.25	.54	.80	1.19	1.22	---	---	---
7	+.08	+.47	+.45	.19	.23	.59	.81	1.07	1.21	---	---	---
8	.00	+.46	+.35	.23	.24	.63	.93	1.04	1.19	---	---	---
9	.09	+.45	+.30	.25	.28	.64	1.17	1.01	1.19	---	---	---
10	.17	+.46	+.25	.27	.32	.68	.95	.87	1.21	---	---	---
11	.13	+.44	+.18	.20	.40	.66	1.05	.84	1.22	---	---	---
12	.20	+.46	+.15	.17	.41	.65	1.39	.81	1.23	---	---	---
13	.28	+.51	+.16	.16	.42	.68	1.97	.72	1.23	---	---	---
14	.36	+.62	+.12	.17	.35	.70	1.47	.68	1.22	---	---	---
15	.42	+.72	+.07	.21	.41	.72	1.23	.68	1.20	---	---	---
16	.47	+.87	+.02	.21	.40	.72	1.08	.70	1.03	---	---	---
17	.53	+.94	.01	.18	.46	.74	.98	.72	.94	---	---	---
18	.63	+.1.05	+.07	.18	.46	.76	.94	.74	.87	---	---	---
19	+.53	+.1.09	+.11	.20	.44	.77	.92	.69	.85	---	---	---
20	+.54	+.1.09	+.13	.18	.48	.78	.90	.70	.84	---	---	---
21	+.55	+.1.04	+.12	.17	.48	.78	.89	.72	.86	---	---	---
22	+.54	+.1.00	+.08	.11	.52	.79	.88	.77	1.34	---	---	---
23	+.53	+.96	+.06	.10	.54	.82	.92	.84	2.15	---	---	---
24	+.51	+.91	+.03	.10	.59	.84	.92	.88	2.20	---	---	---
25	+.49	+.86	.02	.12	.58	.85	.94	.92	3.41	---	---	---
26	+.42	+.88	.08	.13	.62	.91	.99	.99	2.46	---	---	---
27	+.38	+.82	.07	.16	.54	.92	1.14	1.04	2.29	---	---	---
28	+.49	+.79	.09	.16	.56	.91	1.06	1.06	---	---	---	---
29	+.50	+.78	.09	.17	---	.90	1.02	1.10	---	---	---	---
30	+.51	+.74	.10	.16	---	.90	1.01	1.15	---	---	---	---
31	+.50	---	.11	.17	---	.88	---	1.17	---	---	---	---
MEAN	+.17	+.71	+.19	.16	.39	.73	1.03	.91	1.39	---	---	---

WTR YR 1994 MEAN .38 HIGHEST +1.11 NOV, 19, 20, 1993 LOWEST 5.32 JUNE 28, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182511066045401. Local number, PN-2.

LOCATION.--Lat 18°25'11", long 66°04'54", Hydrologic Unit 21010005, 1.58 mi northeast of Fort Buchanan Military Res. main gate, 2.95 mi southeast of Cataño plaza, and 2.45 mi southeast of U.S. Naval Reservation in Miramar.

Owner: U.S. Geological Survey, WRD, Name: La Esperanza No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), perforated 30-40 ft (9.15-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.17 ft (0.97 m) above land-surface datum.

REMARKS.--Recording observation well.

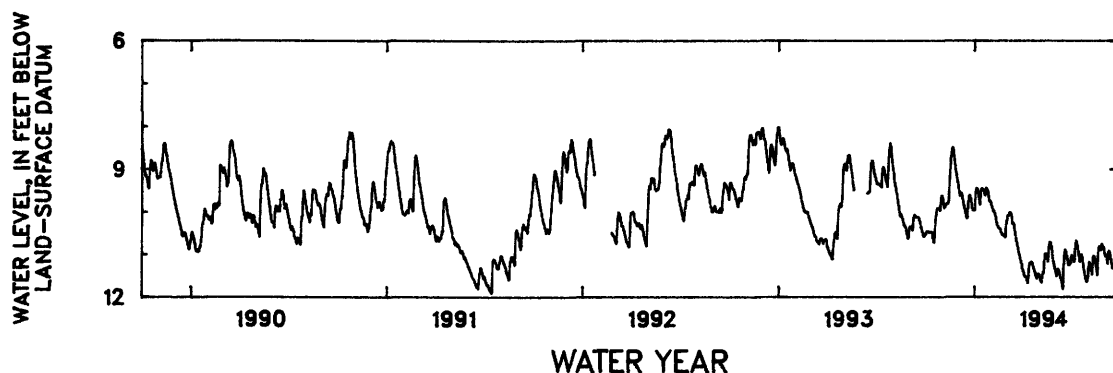
PERIOD OF RECORD.--July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.01 ft (2.44 m) below land-surface datum, Dec. 30, 31, 1992; lowest water level recorded, 11.90 ft (3.63 m) below land-surface datum, July 15, 16, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.53	9.62	9.38	9.97	9.84	10.26	11.38	11.48	11.38	11.02	11.33	11.04
2	10.50	9.67	9.45	9.75	9.88	10.19	11.41	11.52	11.44	11.07	11.22	11.00
3	10.46	9.76	9.53	9.53	9.92	10.10	11.46	11.55	11.51	11.07	11.18	11.01
4	10.46	9.84	9.62	9.46	9.98	10.08	11.50	11.60	11.37	11.10	11.23	11.05
5	10.46	9.92	9.60	9.44	9.97	10.09	11.53	11.63	11.35	11.15	11.29	11.13
6	10.46	9.88	9.55	9.48	9.98	10.07	11.53	11.66	11.36	11.18	11.35	11.22
7	10.48	9.85	9.56	9.52	10.03	10.02	11.53	11.54	11.39	10.91	11.40	10.97
8	10.48	9.84	9.61	9.60	10.07	10.02	11.56	11.46	11.44	10.76	11.48	10.92
9	10.48	9.82	9.69	9.69	10.11	10.03	11.61	11.42	11.48	10.68	11.23	10.94
10	10.48	9.80	9.75	9.76	10.18	10.07	11.67	11.43	11.54	10.71	11.07	11.01
11	10.48	9.80	9.83	9.83	10.26	10.12	11.54	11.14	11.57	10.78	11.03	11.06
12	10.48	9.80	9.90	9.61	10.32	10.29	11.35	11.01	11.61	10.84	11.06	11.12
13	10.48	9.73	9.94	9.47	10.34	10.27	11.24	10.99	11.68	10.93	11.12	11.19
14	10.53	9.55	9.98	9.45	10.38	10.26	11.21	10.99	11.76	11.03	11.18	11.25
15	10.62	9.19	10.04	9.46	10.38	10.31	11.21	11.02	11.81	11.10	11.24	11.33
16	10.72	8.94	10.10	9.49	10.40	10.39	11.19	11.08	11.33	11.18	11.34	11.30
17	10.72	8.73	10.15	9.50	10.40	10.47	11.18	11.13	11.11	11.04	11.41	11.25
18	10.49	8.60	10.13	9.49	10.42	10.55	11.20	11.17	10.92	11.05	11.49	11.27
19	10.31	8.51	9.89	9.56	10.49	10.63	11.23	10.86	10.89	11.00	11.02	11.32
20	10.16	8.49	9.74	9.62	10.51	10.70	11.28	10.76	10.93	11.06	10.87	11.32
21	10.06	8.49	9.63	9.52	10.54	10.75	11.33	10.72	10.99	11.14	10.81	11.00
22	9.94	8.57	9.60	9.44	10.54	10.81	11.36	10.72	11.05	11.21	10.82	10.93
23	9.91	8.69	9.63	9.44	10.54	10.87	11.40	10.75	11.11	11.30	10.86	10.91
24	9.91	8.79	9.68	9.48	10.56	10.94	11.45	10.82	11.18	11.37	10.91	10.97
25	9.91	8.90	9.75	9.51	10.58	10.99	11.48	10.89	11.25	11.43	10.81	11.05
26	9.91	9.01	9.83	9.56	10.58	11.04	11.53	11.04	11.26	11.51	10.76	11.08
27	9.94	9.08	9.91	9.64	10.60	11.09	11.57	11.11	11.16	11.57	10.81	11.18
28	9.97	9.15	9.96	9.73	10.38	11.14	11.49	11.18	11.17	11.63	10.87	11.27
29	9.81	9.23	9.94	9.75	---	11.21	11.48	11.23	11.22	11.65	10.83	11.30
30	9.67	9.30	9.94	9.75	---	11.27	11.46	11.29	11.08	11.61	10.87	11.32
31	9.62	---	9.96	9.78	---	11.32	---	11.35	---	11.58	10.97	---
MEAN	10.27	9.28	9.78	9.59	10.29	10.53	11.41	11.18	11.31	11.15	11.09	11.12

WTR YR 1994 MEAN 10.59 HIGHEST 8.49 NOV. 19, 20, 21, 1994 LOWEST 11.81 JUNE 15, 1994



GROUND-WATER LEVELS

443

RIO HONDO TO RIO PUERTO NUEVO BASINS

192435066052700. Local number, PN-5.

LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cataño plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV radio antenna. Owner: U.S. Geological Survey, WRD, Name: Salud Mental No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83 ft (0-25.3 m), perforated 73-83 ft (22.2-25.3 m). Depth 83 ft (25.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.85 ft (0.87 m) above land-surface datum.

REMARKS.--Recording observation well.

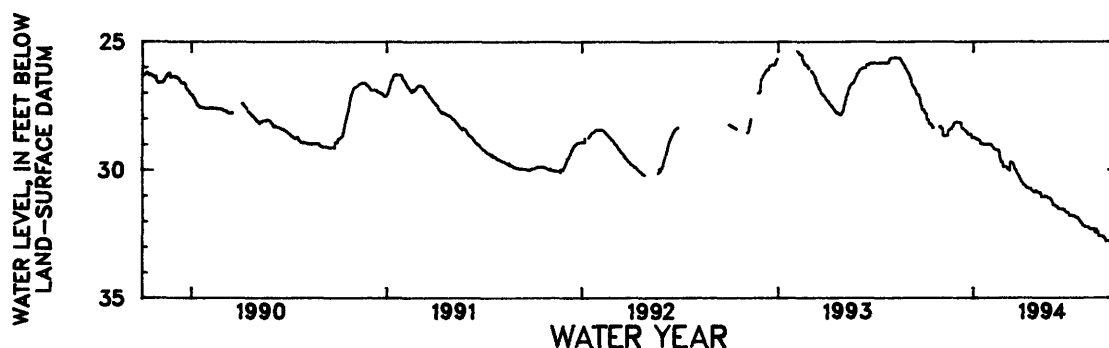
PERIOD OF RECORD.--April 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 25.37 ft (7.73 m) below land-surface datum, Feb. 5, 1993; lowest water level recorded, 32.82 ft (10.0 m) below land-surface datum, Sept. 25, 26, 27, 28, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.70	28.32	28.13	28.74	29.01	29.87	30.45	30.86	31.38	31.78	32.23	32.61
2	27.75	28.37	28.13	28.74	29.01	29.88	30.47	30.86	31.38	31.78	32.23	32.61
3	27.79	28.41	28.13	28.74	29.01	29.88	30.51	30.88	31.38	31.78	32.23	32.64
4	27.80	28.42	28.14	28.75	29.05	29.89	30.55	30.89	31.42	31.79	32.24	32.66
5	27.83	28.68	28.14	28.77	29.07	29.92	30.59	30.90	31.42	31.79	32.27	32.71
6	28.02	28.68	28.15	28.78	29.11	29.92	30.60	30.89	31.43	31.79	32.27	32.79
7	28.05	28.68	28.15	28.80	29.13	29.98	30.61	30.89	31.43	31.79	32.31	32.78
8	28.05	28.68	28.15	28.80	29.17	29.98	30.62	31.05	31.52	31.79	32.31	32.78
9	28.08	28.68	28.16	28.80	29.18	29.98	30.64	31.06	31.52	31.80	32.31	32.78
10	28.20	28.67	28.36	28.80	29.19	30.03	30.69	31.06	31.52	31.82	32.31	32.78
11	28.20	28.67	28.38	28.83	29.20	29.67	30.69	31.06	31.53	31.84	32.31	32.78
12	28.20	28.67	28.39	28.84	29.21	29.68	30.71	31.06	31.53	31.87	32.31	32.79
13	28.24	28.67	28.40	28.86	29.22	29.69	30.72	31.06	31.53	31.87	32.31	32.79
14	28.25	28.65	28.41	28.88	29.22	29.71	30.73	31.06	31.53	31.87	32.31	32.79
15	28.24	28.46	28.43	28.98	29.22	29.72	30.73	31.02	31.53	31.87	32.31	32.82
16	28.32	28.45	28.45	28.97	29.22	29.73	30.73	31.03	31.52	31.90	32.44	32.82
17	28.36	28.45	28.47	28.97	29.22	29.80	30.73	31.03	31.54	31.92	32.44	32.81
18	28.36	28.42	28.51	28.97	29.31	29.82	30.74	31.03	31.54	31.97	32.44	32.81
19	---	28.40	28.52	29.00	29.46	29.95	30.74	31.08	31.54	32.00	32.30	32.81
20	---	28.40	28.53	29.00	29.54	29.97	30.81	31.08	31.54	32.02	32.44	32.81
21	---	28.40	28.59	29.00	29.59	29.99	30.81	31.09	31.61	32.05	32.43	32.73
22	---	28.33	28.61	29.00	29.69	30.01	30.83	31.09	31.63	32.07	32.43	32.67
23	---	28.32	28.62	29.00	29.69	30.10	30.83	31.10	31.65	32.11	32.54	32.68
24	---	28.27	28.62	29.00	29.69	30.14	30.83	31.10	31.67	32.17	32.58	32.68
25	---	28.22	28.62	29.01	29.71	30.16	30.87	31.13	31.67	32.17	32.58	32.68
26	---	28.19	28.62	29.01	29.89	30.20	30.88	31.15	31.67	32.18	32.58	32.82
27	---	28.16	28.61	29.01	29.89	30.22	30.88	31.17	31.67	32.18	32.58	32.82
28	---	28.14	28.61	29.01	29.87	30.27	30.80	31.21	31.72	32.23	32.58	32.82
29	---	28.14	28.74	29.01	---	30.32	30.80	31.29	31.78	32.23	32.58	32.72
30	28.32	28.12	28.75	29.01	---	30.37	30.86	31.38	31.78	32.23	32.59	32.67
31	28.32	---	28.74	29.01	---	30.41	---	31.38	---	32.23	32.61	---
MEAN	28.10	28.44	28.43	28.91	29.35	29.98	30.71	31.06	31.55	31.96	32.40	32.75

WTR YR 1994 MEAN 30.37 HIGHEST 27.68 OCT. 1, 1993 LOWEST 32.82 SEPT. 25, 26, 27, 28, 1994



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182445066043401. Local number, PN-6.

LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Escuela Dr. Pedreira, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate. Owner: U.S. Geological Survey, WRD, Name: Alseacia No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27 ft (0-8.23 m), perforated 21-27 ft (6.40-8.23 m). Depth 27 ft (8.23 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.03 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Destroyed by Municipality employee with heavy equipment. Monthly measurement with chalked steel tape by USGS personnel, automatic digital recorder reinstalled on Sept. 9, 1993.

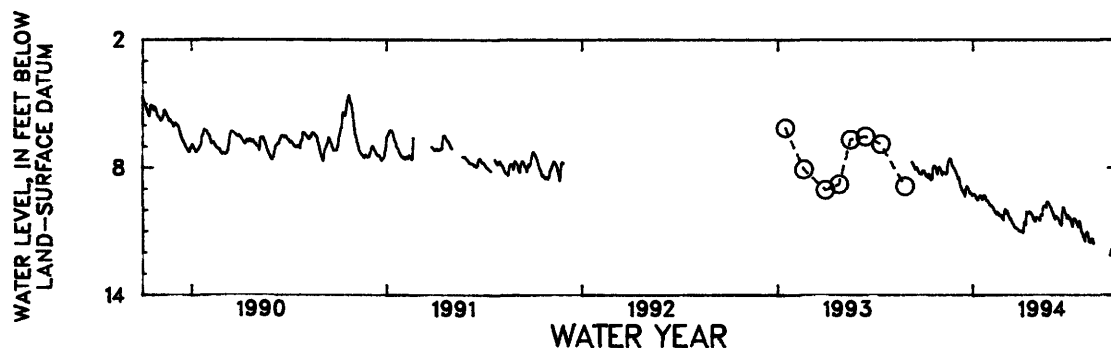
PERIOD OF RECORD.--July 1989 to November 27, 1991, temporary discontinued, September 9, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.11 ft (0.95 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 13.26 ft (4.04 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.16	8.01	8.25	9.27	9.67	10.01	11.00	10.34	10.29	10.35	11.05	---
2	8.12	8.09	8.30	9.24	9.76	9.95	11.01	10.36	10.37	10.48	11.02	---
3	8.21	8.17	8.39	9.26	9.79	10.01	11.02	10.40	10.42	10.53	11.09	---
4	8.28	8.29	8.50	9.25	9.77	10.13	11.06	10.43	10.26	10.63	11.26	---
5	8.35	8.34	8.44	9.30	9.78	10.12	11.04	10.48	10.29	10.77	11.48	---
6	8.40	8.22	8.44	9.33	9.83	10.03	10.58	10.48	10.32	10.65	11.50	---
7	8.33	8.20	8.62	9.41	9.88	10.14	10.53	10.24	10.34	10.47	11.52	---
8	8.32	8.22	8.73	9.45	9.92	10.25	10.63	10.20	10.38	10.38	11.52	---
9	8.42	8.22	8.86	9.49	9.99	10.32	10.69	10.20	10.41	10.39	11.36	---
10	8.47	8.23	8.92	9.53	10.04	10.38	10.03	10.22	10.48	10.41	11.35	---
11	8.28	8.28	9.03	9.49	10.11	10.45	10.22	9.93	10.52	10.46	11.34	---
12	8.33	8.29	9.10	9.37	10.14	10.38	10.11	9.85	10.59	10.52	11.36	---
13	8.44	8.28	9.05	9.36	10.17	10.46	10.13	9.81	10.64	10.59	11.47	---
14	8.54	8.19	9.12	9.32	10.18	10.53	10.13	9.80	10.69	10.65	11.59	12.12
15	8.57	7.88	9.18	9.39	10.07	10.61	10.06	9.78	10.72	10.72	---	11.94
16	8.53	7.71	9.26	9.31	10.11	10.64	10.06	9.80	10.20	10.78	---	11.85
17	8.51	7.67	9.35	9.33	10.15	10.66	10.08	9.84	9.98	10.57	---	11.89
18	8.07	7.61	9.18	9.40	10.24	10.75	10.10	9.85	9.87	10.51	---	12.09
19	7.98	7.56	8.99	9.50	10.23	10.79	10.15	9.61	9.87	10.52	---	12.29
20	7.91	7.60	8.91	9.44	10.24	10.82	10.20	9.60	9.98	10.70	---	12.07
21	7.90	7.60	8.87	9.39	10.26	10.81	10.25	9.62	10.05	10.86	---	11.99
22	7.92	7.75	8.92	9.31	10.21	10.83	10.30	9.64	10.13	10.99	---	12.11
23	7.97	7.88	8.96	9.30	10.26	10.86	10.35	9.68	10.23	11.07	---	12.32
24	8.03	7.91	9.01	9.32	10.37	10.88	10.42	9.75	10.28	11.09	---	12.52
25	8.14	7.96	9.10	9.37	10.39	10.90	10.46	9.80	10.39	11.25	---	12.62
26	8.23	8.00	9.16	9.48	10.41	10.94	10.51	9.87	10.24	11.27	---	12.54
27	8.30	7.99	9.21	9.55	10.45	10.97	10.51	9.96	10.22	11.30	---	12.81
28	8.11	8.08	9.18	9.55	10.05	10.97	10.34	10.03	10.33	11.39	---	12.94
29	8.01	8.13	9.24	9.55	---	10.97	10.33	10.08	10.41	11.46	---	13.02
30	7.95	8.18	9.27	9.59	---	10.99	10.33	10.17	10.36	11.09	---	13.17
31	8.00	---	9.32	9.68	---	10.99	---	10.25	---	11.08	---	---
MEAN	8.22	8.02	8.93	9.40	10.09	10.57	10.42	10.00	10.31	10.77	11.35	12.37

WTR YR 1994 MEAN 9.88 HIGHEST 7.56 NOV. 19, 1993 LOWEST 13.26 SEPT. 30, 1994



GROUND-WATER LEVELS

445

RIO HONDO TO RIO PUERTO NUEVO BASINS

182437066040500. Local number, PN-7.

LOCATION.--Lat 18°24'37", long 66°04'05", Hydrologic Unit 21010005, 4.03 mi southeast of Cataño plaza, 0.70 mi east of Escuela Dr. Pedreira, and 0.25 southeast of Hospital del Maestro. Owner: U.S. Geological Survey, WRD, Name: Parque de las Fuentes No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-52 ft (0-15.8 m), perforated 42-52 ft (12.8-15.8 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 23 ft (7.01 m) above mean sea level, from levels.

Measuring point: Hole on well shelter floor, 3.20 ft (0.98 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182437066040501, Parque de las Fuentes No. 2, which is another well.

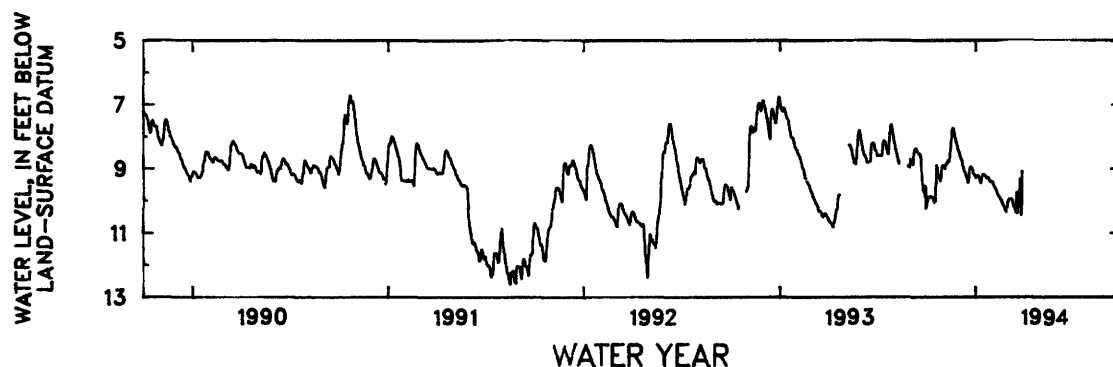
PERIOD OF RECORD.--February 1989 to March 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.50 ft (1.98 m) below land-surface datum, Sept. 27, 1989; lowest water level recorded, 12.60 ft (3.84 m) below land-surface datum, Aug. 16, 17, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.13	8.89	8.48	9.28	9.41	10.05	---	---	---	---	---	---
2	10.03	8.89	8.54	9.27	9.44	10.00	---	---	---	---	---	---
3	9.96	8.90	8.61	9.25	9.50	9.96	---	---	---	---	---	---
4	9.92	8.97	8.68	9.22	9.56	9.94	---	---	---	---	---	---
5	9.87	9.00	8.69	9.22	9.57	9.94	---	---	---	---	---	---
6	9.87	8.88	8.74	9.22	9.59	9.94	---	---	---	---	---	---
7	9.87	8.83	8.86	9.26	9.64	9.94	---	---	---	---	---	---
8	9.87	8.83	8.90	9.31	9.67	9.94	---	---	---	---	---	---
9	9.86	8.77	8.96	9.37	9.72	9.96	---	---	---	---	---	---
10	9.90	8.74	9.05	9.42	9.77	10.01	---	---	---	---	---	---
11	9.90	8.73	9.09	9.45	9.82	10.11	---	---	---	---	---	---
12	9.90	8.79	9.14	9.32	9.84	10.17	---	---	---	---	---	---
13	9.90	8.73	9.18	9.23	9.88	10.17	---	---	---	---	---	---
14	9.97	8.58	9.23	9.18	9.91	10.20	---	---	---	---	---	---
15	10.04	8.38	9.27	9.18	9.92	10.24	---	---	---	---	---	---
16	10.03	8.15	9.33	9.18	9.97	10.27	---	---	---	---	---	---
17	10.01	7.94	9.44	9.18	9.98	10.36	---	---	---	---	---	---
18	9.64	7.82	9.41	9.20	10.01	9.73	---	---	---	---	---	---
19	9.45	7.73	9.27	9.24	10.07	10.22	---	---	---	---	---	---
20	8.87	7.73	9.12	9.27	10.10	10.41	---	---	---	---	---	---
21	8.98	7.75	8.98	9.29	10.16	9.88	---	---	---	---	---	---
22	9.17	7.87	8.96	9.29	10.19	9.70	---	---	---	---	---	---
23	9.18	7.97	8.93	9.28	10.21	9.73	---	---	---	---	---	---
24	9.21	8.04	8.95	9.27	10.23	9.69	---	---	---	---	---	---
25	9.27	8.12	8.99	9.29	10.28	9.30	---	---	---	---	---	---
26	9.33	8.19	9.03	9.33	10.32	10.09	---	---	---	---	---	---
27	9.38	8.24	9.13	9.39	10.35	10.48	---	---	---	---	---	---
28	9.25	8.30	9.15	9.41	10.18	9.82	---	---	---	---	---	---
29	9.09	8.40	9.19	9.41	---	9.08	---	---	---	---	---	---
30	8.94	8.43	9.19	9.42	---	---	---	---	---	---	---	---
31	8.90	---	9.23	9.40	---	---	---	---	---	---	---	---
MEAN	9.60	8.42	9.02	9.29	9.90	9.98	---	---	---	---	---	---

WTR YR 1994 MEAN 9.36 HIGHEST 6.86 OCT. 20, 1993 LOWEST 11.19 MAR. 28, 1994



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182443066041502. Local number, PN-8c.

LOCATION.--Lat 18°24'43", long 66°04'15", Hydrologic Unit 21010005, 2.29 mi east of Fort Buchanan Military Res. main gate, 3.83 mi southeast of Cataño plaza, and 0.16 mi southwest of Hospital del Maestro. Owner: U.S. Geological Survey, WRD, Name: Parque Luis Muñoz Marín 1C.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33 ft (0-10.1 m), perforated 33-40 ft (10.1-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.66 ft (1.12 m) above land-surface datum.

REMARKS.--Recording observation well.

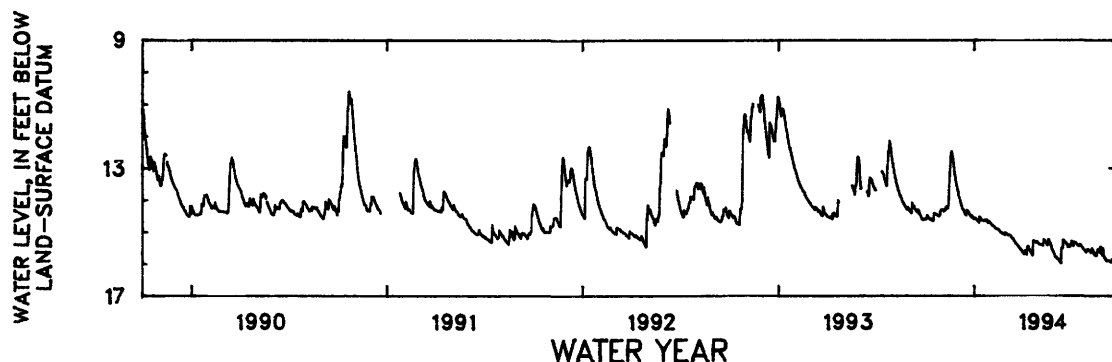
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.35 ft (3.15 m) below land-surface datum, Sept. 25, 1989; lowest water level recorded, 16.10 ft (4.91 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.60	14.29	13.68	14.60	14.75	15.04	15.62	15.37	15.77	15.41	15.54	15.78
2	14.60	14.30	13.73	14.57	14.76	15.05	15.64	15.39	15.79	15.28	15.54	15.85
3	14.60	14.30	13.87	14.57	14.79	15.06	15.65	15.39	15.80	15.37	15.56	15.83
4	14.60	14.32	13.94	14.59	14.80	15.09	15.68	15.40	15.80	15.43	15.59	15.89
5	14.47	14.36	13.94	14.61	14.81	15.10	15.70	15.41	15.83	15.44	15.59	15.91
6	14.52	14.30	14.03	14.63	14.82	15.09	15.58	15.42	15.85	15.32	15.61	15.91
7	14.54	14.30	14.11	14.64	14.83	15.10	15.64	15.41	15.86	15.32	15.64	15.89
8	14.57	14.31	14.17	14.67	14.85	15.10	15.68	15.40	15.88	15.33	15.64	15.88
9	14.59	14.22	14.20	14.69	14.87	15.11	15.71	15.41	15.91	15.33	15.51	15.90
10	14.60	14.20	14.27	14.71	14.88	15.13	15.48	15.44	15.94	15.35	15.57	15.92
11	14.58	14.26	14.30	14.52	14.90	15.16	15.47	15.22	15.96	15.38	15.59	15.92
12	14.60	14.25	14.33	14.55	14.90	15.17	15.45	15.25	15.98	15.40	15.64	15.93
13	14.62	14.25	14.35	14.57	14.91	15.20	15.54	15.28	15.50	15.41	15.70	15.95
14	14.64	14.09	14.40	14.60	14.91	15.21	15.56	15.31	15.51	15.42	15.72	15.94
15	14.65	13.69	14.44	14.64	14.92	15.24	15.58	15.34	15.51	15.43	15.72	15.86
16	14.65	13.20	14.46	14.65	14.93	15.26	15.61	15.37	15.23	15.45	15.74	15.84
17	14.61	13.03	14.48	14.64	14.96	15.29	15.64	15.39	15.26	15.40	15.74	15.90
18	14.40	12.67	14.31	14.65	14.98	15.31	15.67	15.42	15.27	15.40	15.64	15.95
19	14.45	12.49	14.34	14.65	15.00	15.34	15.70	15.30	15.31	15.43	15.55	15.98
20	14.45	12.47	14.35	14.66	15.02	15.36	15.74	15.23	15.32	15.45	15.55	15.70
21	14.44	12.57	14.37	14.65	15.03	15.39	15.27	15.26	15.34	15.48	15.59	15.75
22	14.44	12.70	14.41	14.61	15.03	15.40	15.27	15.33	15.37	15.50	15.62	15.80
23	14.46	12.83	14.44	14.63	15.05	15.41	15.28	15.36	15.39	15.52	15.63	15.88
24	14.47	12.97	14.48	14.62	15.06	15.45	15.30	15.41	15.43	15.54	15.48	15.93
25	14.48	13.10	14.49	14.65	15.07	15.47	15.31	15.45	15.48	15.55	15.46	15.90
26	14.50	13.21	14.52	14.69	15.08	15.49	15.33	15.52	15.40	15.57	15.63	15.88
27	14.52	13.32	14.54	14.72	15.09	15.51	15.33	15.57	15.42	15.60	15.69	15.97
28	14.47	13.44	14.49	14.71	15.02	15.53	15.29	15.60	15.46	15.61	15.73	16.02
29	14.44	13.53	14.54	14.67	---	15.56	15.34	15.63	15.47	15.63	15.50	16.06
30	14.34	13.62	14.56	14.70	---	15.57	15.35	15.68	15.41	15.55	15.67	16.09
31	14.31	---	14.60	14.73	---	15.58	---	15.72	---	15.59	15.76	---
MEAN	14.52	13.62	14.29	14.64	14.93	15.28	15.51	15.41	15.58	15.45	15.62	15.90

WTR YR 1994 MEAN 15.06 HIGHEST 12.47 NOV. 19, 20, 1993 LOWEST 16.10 SEPT. 30, 1994



GROUND-WATER LEVELS

447

RIO HONDO TO RIO PUERTO NUEVO BASINS

182417066042700. Local number, PN-10.

LOCATION.--Lat 18°24'17", long 66°04'27", Hydrologic Unit 21010005, 3.96 mi southeast of Cataño plaza, 1.00 mi southwest of Escuela J.J. Osuna, and 2.26 mi east of WAPA TV radio antenna. Owner: U.S. Geological Survey, WRD, Name: Las Américas No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, cased 4.0 in (0.10 m), 0-80 ft (0-24.39 m), 4.0 in (0.10 m), perforated pipe 80-90 ft (24.39-27.43 m). Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 16 ft (4.89 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.10 ft (0.95 m) above land-surface datum.

REMARKS.--Recording observation well. Well affected by pumping during June 1994.

PERIOD OF RECORD.--October 1989 to current year.

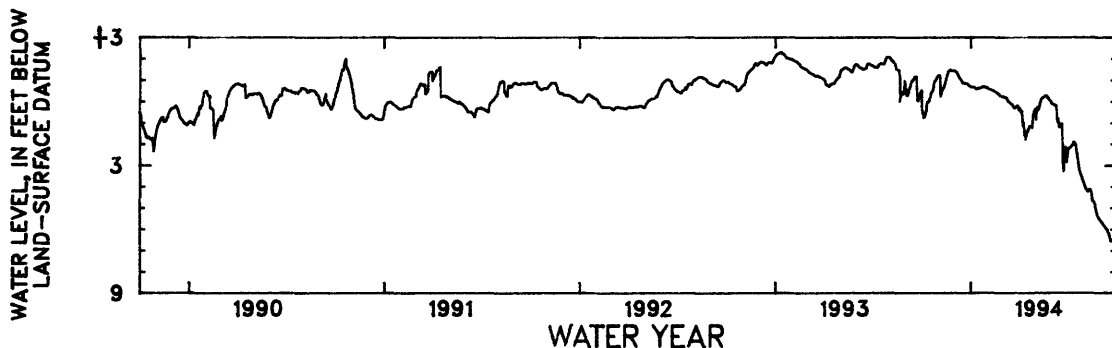
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.30 ft (+0.70 m) above land-surface datum, Jan. 9, 10, 11, 12, 1993; lowest water level recorded, 6.74 ft (2.05 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+.53	+1.22	+1.45	+.68	+.64	+.23	.38	.45	.03	2.60	3.86	5.59
2	.25	+1.23	+1.44	+.67	+.61	+.23	.35	.41	.08	2.37	3.95	5.62
3	.53	+1.23	+1.42	+.67	+.59	+.22	.30	.35	.11	2.22	4.02	5.66
4	.56	+1.21	+1.40	+.68	+.57	+.22	.39	.88	.12	2.17	4.08	5.69
5	.74	+.20	+1.37	+.68	+.56	+.20	.52	.53	.13	2.17	4.11	5.73
6	.72	+.36	+1.34	+.67	+.56	+.20	.46	.32	.14	2.16	4.16	5.76
7	.73	+.45	+1.29	+.66	+.55	+.19	.46	.26	.16	2.13	4.21	5.80
8	.63	+.53	+1.24	+.65	+.54	+.18	.94	.40	.17	2.09	4.23	5.83
9	.53	+.60	+1.19	+.62	+.52	+.16	1.13	.36	.18	2.07	4.18	5.87
10	.39	+.64	+1.14	+.60	+.52	+.13	.99	.28	.18	2.05	4.18	5.90
11	.16	+.67	+1.10	+.58	+.50	+.08	1.27	.16	.36	2.03	4.14	5.94
12	.04	+.72	+1.06	+.59	+.49	+.03	1.59	.04	.86	1.96	4.12	5.97
13	+.01	+.78	+1.02	+.61	+.48	.00	1.45	+.04	.96	1.90	4.15	6.01
14	.02	+.89	+.99	+.62	+.46	.03	1.80	+.11	.80	1.91	4.24	6.03
15	+.01	+1.00	+.94	+.62	+.45	.04	1.62	+.16	1.00	1.95	4.37	6.13
16	+.08	+1.10	+.89	+.62	+.44	.06	1.54	+.18	1.19	1.98	4.55	6.17
17	+.21	+1.21	+.86	+.62	+.43	.10	1.42	+.19	1.18	2.05	4.64	6.20
18	+.38	+1.27	+.85	+.63	+.43	.12	1.41	+.19	1.15	2.26	4.67	6.32
19	+.41	+1.34	+.85	+.63	+.41	.13	1.31	+.23	1.10	2.44	4.66	6.43
20	+.46	+1.41	+.85	+.64	+.39	.15	1.31	+.26	1.12	2.61	4.69	6.53
21	+.50	+1.45	+.85	+.64	+.36	.18	1.24	+.26	1.03	2.78	4.77	6.54
22	+.55	+1.47	+.85	+.67	+.34	.26	1.15	+.27	1.58	2.96	4.85	6.53
23	+.74	+1.48	+.85	+.70	+.33	.30	1.18	+.26	2.84	3.12	4.99	6.50
24	+.89	+1.49	+.83	+.70	+.31	.30	1.17	+.23	3.30	3.23	5.12	6.50
25	+.96	+1.46	+.83	+.69	+.26	.29	1.18	+.20	2.81	3.32	5.23	6.56
26	+1.00	+1.45	+.79	+.70	+.25	.26	1.16	+.17	2.45	3.41	5.34	6.62
27	+1.00	+1.45	+.76	+.69	+.24	.26	1.23	+.13	2.11	3.47	5.41	6.63
28	+1.06	+1.45	+.74	+.67	+.23	.23	.93	+.10	2.14	3.56	5.44	6.66
29	+1.11	+1.44	+.74	+.67	---	.20	.64	+.08	2.54	3.64	5.48	6.67
30	+1.16	+1.44	+.72	+.65	---	.20	.52	+.05	2.85	3.71	5.51	6.72
31	+1.19	---	+.70	+.64	---	.27	---	+.02	---	3.77	5.55	---
MEAN	+.22	+1.09	+1.01	+.65	+.45	.04	1.03	.04	1.16	2.58	4.61	6.17

WTR YR 1994 MEAN 1.02 HIGHEST +1.50 NOV. 24, 1993 LOWEST 6.74 SEPT. 30, 1994

+ Above land-surface datum



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182349066032600. Local number, PN-13.

LOCATION.--Lat 18°23'49", long 66°03'26", Hydrologic Unit 21010005, 5.15 mi southeast of Cataño plaza, 1.28 mi south of Escuela J.J. Osuna, and 0.69 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardín Botánico No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-45 ft (0-13.72 m), perforated 35-45 ft (10.67-13.72 m). Depth 45 ft (13.72 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.84 ft (0.86 m) above land-surface datum.

REMARKS.--Recording observation well.

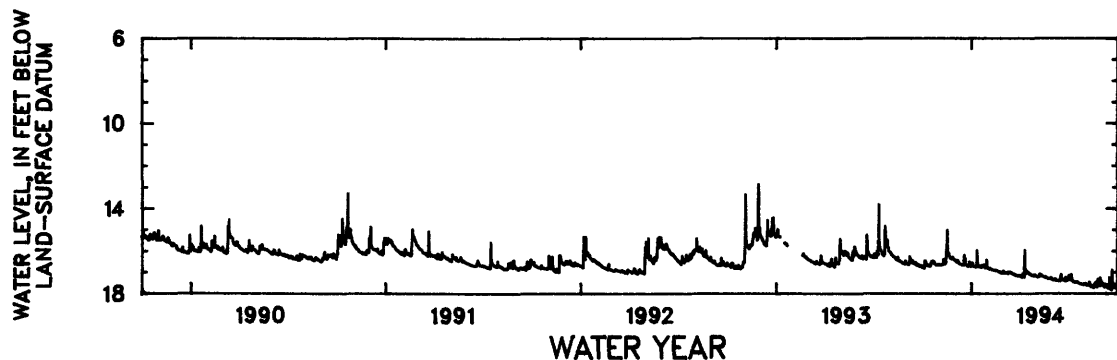
PERIOD OF RECORD.--March 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.75 ft (2.67 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 17.82 ft (5.43 m) below land-surface datum, Sept. 18, 19, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.75	16.65	16.46	16.60	16.82	16.94	17.16	17.17	17.33	17.30	17.53	17.44
2	16.79	16.66	16.46	16.56	16.82	17.02	17.17	17.19	17.35	17.14	17.52	17.60
3	16.79	16.65	16.52	16.62	16.85	17.00	17.18	17.20	17.35	17.26	17.56	17.53
4	16.82	16.67	16.53	16.70	16.81	17.03	17.20	17.20	17.34	17.35	17.60	17.62
5	16.45	16.66	16.42	16.72	16.84	17.04	17.20	17.20	17.35	17.35	17.60	17.66
6	16.46	16.62	16.50	16.73	16.85	17.04	17.08	17.20	17.31	17.08	17.60	17.68
7	16.58	16.64	16.56	16.74	16.87	17.01	17.18	17.18	17.34	17.33	17.62	17.57
8	16.61	16.64	16.58	16.75	16.88	17.03	17.21	17.08	17.39	17.39	17.58	17.55
9	16.66	16.38	16.60	16.76	16.88	17.05	17.21	17.16	17.40	17.40	17.45	17.68
10	16.69	16.47	16.61	16.75	16.89	17.06	15.93	17.17	17.40	17.44	17.59	17.57
11	16.65	16.59	16.63	15.94	16.90	16.98	16.97	17.12	17.40	17.44	17.58	17.69
12	16.70	16.60	16.64	16.56	16.91	17.00	16.88	17.16	17.40	17.47	17.67	17.72
13	16.70	16.55	16.63	16.68	16.91	17.00	17.05	17.18	17.40	17.47	17.68	17.75
14	16.71	16.16	16.65	16.72	16.92	17.01	17.02	17.20	17.40	17.47	17.63	17.71
15	16.72	15.71	16.65	16.75	16.89	17.02	16.97	17.21	17.41	17.47	17.68	17.22
16	16.63	15.00	16.67	16.73	16.91	17.03	17.01	17.21	17.23	17.48	17.71	17.62
17	16.58	16.07	16.67	16.70	16.93	17.04	17.02	17.23	17.10	17.43	17.72	17.70
18	16.48	16.11	16.15	16.73	16.94	17.06	17.05	17.24	17.27	17.48	17.53	17.80
19	16.55	16.11	16.55	16.77	16.95	17.08	17.08	17.21	17.31	17.48	17.58	17.82
20	16.47	16.26	16.34	16.77	16.96	17.09	17.09	17.24	17.35	17.51	17.47	16.86
21	16.54	16.28	16.64	16.68	16.97	17.09	17.10	17.24	17.35	17.52	17.61	17.52
22	16.49	16.34	16.65	16.71	16.98	17.11	17.12	17.27	17.38	17.54	17.51	17.57
23	16.59	16.36	16.67	16.71	16.98	17.11	17.12	17.28	17.38	17.55	17.69	17.70
24	16.61	16.37	16.71	16.65	17.03	17.13	17.15	17.29	17.40	17.55	17.32	17.70
25	16.64	16.37	16.72	16.73	17.03	17.14	17.15	17.29	17.40	17.55	17.39	17.54
26	16.66	16.29	16.73	16.77	17.04	17.14	17.16	17.30	17.22	17.55	17.58	17.58
27	16.67	16.38	16.71	16.80	17.04	17.15	17.17	17.30	17.34	17.56	17.63	17.70
28	16.66	16.40	16.49	16.74	17.00	17.15	17.11	17.30	17.38	17.56	17.64	17.72
29	16.66	16.41	16.70	16.38	---	17.16	17.15	17.25	17.39	17.58	17.25	17.76
30	16.64	16.42	16.69	16.77	---	17.16	17.15	17.30	17.27	17.52	17.48	17.79
31	16.65	---	16.73	16.80	---	17.14	---	17.33	---	17.52	17.59	---
MEAN	16.63	16.36	16.59	16.68	16.92	17.06	17.07	17.22	17.34	17.44	17.57	17.61

WTR YR 1994 MEAN 17.04 HIGHEST 15.00 NOV. 16, 1993 LOWEST 17.82 SEPT. 18, 19, 1994



GROUND-WATER LEVELS

449

RIO HONDO TO RIO PUERTO NUEVO BASINS

19240606034700. Local number, PN-19.

LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J.J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardín Botánico No. 3.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48 ft (14.6 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.91 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

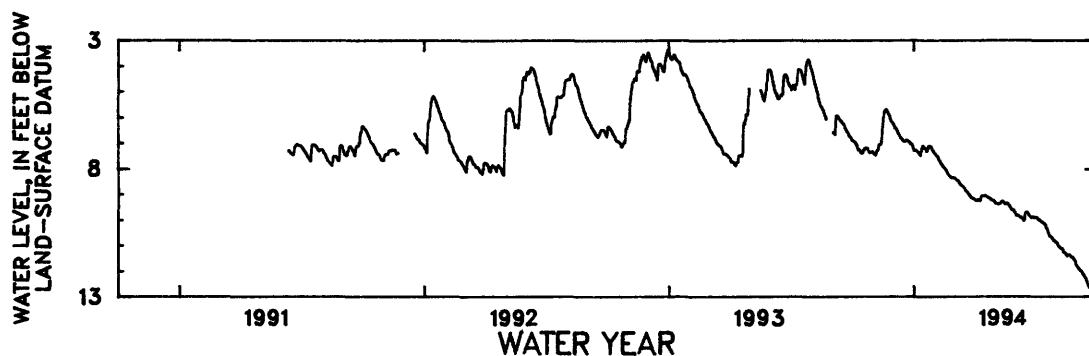
PERIOD OF RECORD.--June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.35 ft (1.02 m) below land-surface datum, Dec. 30, 1992; lowest water level recorded, 12.63 ft (3.85 m) below land-surface datum, Sept. 19, 20, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.89	7.34	6.22	7.28	7.38	8.33	9.18	9.27	9.70	9.89	10.88	11.79
2	6.90	7.37	6.27	7.28	7.41	8.35	9.20	9.32	9.75	9.90	10.88	11.84
3	6.91	7.41	6.32	7.28	7.45	8.36	9.23	9.35	9.82	9.90	10.91	11.87
4	6.93	7.43	6.41	7.27	7.49	8.38	9.24	9.35	9.81	9.91	10.98	11.89
5	6.94	7.46	6.40	7.28	7.51	8.40	9.24	9.37	9.82	9.95	11.03	11.95
6	6.99	7.33	6.44	7.31	7.53	8.42	9.21	9.38	9.83	9.99	11.05	11.98
7	7.01	7.29	6.50	7.34	7.63	8.44	9.20	9.38	9.85	9.97	11.08	11.98
8	7.07	7.27	6.57	7.36	7.68	8.46	9.21	9.35	9.86	10.00	11.11	12.00
9	7.16	7.20	6.62	7.39	7.69	8.48	9.24	9.35	9.89	10.03	11.11	12.07
10	7.25	7.06	6.66	7.44	7.77	8.56	9.24	9.36	9.89	10.05	11.12	12.11
11	7.24	7.04	6.71	7.46	7.81	8.59	9.11	9.30	9.90	10.07	11.16	12.13
12	7.25	7.04	6.79	7.31	7.82	8.62	9.06	9.27	9.93	10.08	11.24	12.18
13	7.30	7.02	6.79	7.17	7.87	8.64	9.04	9.26	9.96	10.11	11.26	12.23
14	7.36	6.95	6.82	7.11	7.92	8.66	9.05	9.28	10.02	10.13	11.28	12.28
15	7.37	6.61	6.86	7.10	7.94	8.68	9.05	9.32	10.03	10.14	11.31	12.34
16	7.38	6.29	6.90	7.17	7.97	8.70	9.04	9.35	9.83	10.18	11.34	12.42
17	7.37	6.02	6.92	7.18	8.00	8.73	9.04	9.37	9.73	10.21	11.39	12.48
18	7.28	5.80	6.94	7.19	8.03	8.77	9.04	9.38	9.69	10.32	11.41	12.59
19	7.25	5.72	6.91	7.20	8.05	8.84	9.07	9.33	9.69	10.34	11.37	12.63
20	7.20	5.69	6.90	7.30	8.14	8.85	9.09	9.34	9.72	10.43	11.35	12.61
21	7.18	5.68	6.88	7.30	8.19	8.89	9.11	9.36	9.75	10.51	11.36	12.56
22	7.18	5.71	6.88	7.19	8.22	8.92	9.12	9.40	9.82	10.61	11.39	12.52
23	7.18	5.77	6.91	7.12	8.25	8.95	9.13	9.45	9.84	10.64	11.42	12.49
24	7.19	5.81	6.93	7.11	8.28	9.00	9.15	9.46	9.86	10.65	11.46	12.48
25	7.26	5.87	6.94	7.12	8.30	9.02	9.16	9.51	9.90	10.67	11.46	12.50
26	7.31	5.93	6.98	7.12	8.34	9.06	9.20	9.56	9.89	10.70	11.46	12.48
27	7.36	6.03	7.02	7.13	8.36	9.10	9.22	9.59	9.87	10.75	11.50	12.47
28	7.36	6.12	7.03	7.21	8.32	9.14	9.23	9.60	9.87	10.77	11.54	12.51
29	7.35	6.16	7.03	7.25	---	9.15	9.23	9.62	9.91	10.82	11.58	12.54
30	7.35	6.19	7.09	7.31	---	9.16	9.24	9.63	9.91	10.82	11.65	12.55
31	7.34	---	7.17	7.35	---	9.17	---	9.66	---	10.84	11.75	---
MEAN	7.20	6.55	6.77	7.25	7.91	8.74	9.15	9.40	9.84	10.30	11.28	12.28

WTR YR 1994 MEAN 8.89 HIGHEST 5.67 NOV. 20, 21, 1993 LOWEST 12.63 SEPT. 19, 20, 1994



GROUND-WATER LEVELS
RIO GRANDE DE LOIZA BASIN

181550065593200. Local number, 50.

LOCATION.--Lat 18°15'50", long 65°59'32", Hydrologic Unit 21010005, 1.36 mi northwest of Gurabo plaza, 0.70 mi north of Estación Experimental Agrícola, and 2.42 mi southwest of Escuela José M. Gallardo. Owner: Gurabo Agricultural Experimental Station, Name: Gurabo.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.34 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 148 ft (45.1 m) above mean sea level, from topographic map.

Measuring point: Top of 12 in (0.30 m) casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 18, 1991.

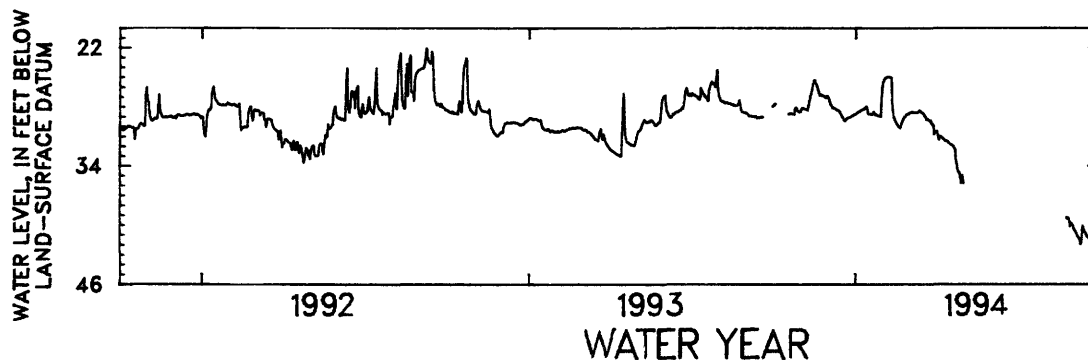
PERIOD OF RECORD.--December 1960 to March 1985, September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.6 ft (3.86 m) below land-surface datum, Sept. 9, 1975; lowest water level measured, 44.4 ft (13.5 m) below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.89	28.24	26.99	28.71	25.46	28.70	30.47	35.04	---	---	---	40.09
2	27.79	28.13	27.20	28.65	25.23	28.63	30.49	35.77	---	---	---	40.39
3	27.72	28.17	27.44	28.57	25.12	28.60	30.91	---	---	---	---	40.55
4	---	28.18	27.77	28.52	25.06	28.58	31.34	---	---	---	---	40.70
5	---	28.23	27.88	28.47	25.00	28.54	30.99	---	---	---	---	40.87
6	---	28.24	28.14	28.42	24.99	28.55	31.02	---	---	---	---	41.11
7	---	28.27	28.09	28.37	24.98	28.58	31.09	---	---	---	---	41.23
8	---	28.34	28.16	28.31	25.01	28.56	31.17	---	---	---	---	41.35
9	---	27.84	28.19	28.28	25.02	28.55	31.28	---	---	---	---	41.54
10	---	27.43	28.26	28.23	25.08	28.57	31.35	---	---	---	---	41.97
11	---	27.02	28.33	28.16	27.61	28.58	31.45	---	---	---	---	41.58
12	---	26.64	28.39	28.06	28.63	28.54	31.47	---	---	---	---	40.03
13	---	26.24	28.42	27.98	29.16	28.41	31.53	---	---	---	---	40.43
14	---	25.80	28.49	28.28	29.39	28.43	31.55	---	---	---	---	40.60
15	---	25.34	28.66	28.70	29.56	28.52	31.67	---	---	---	---	40.78
16	---	25.32	28.84	28.75	29.75	28.59	31.74	---	---	---	---	40.95
17	---	25.60	29.01	28.74	29.89	28.63	31.81	---	---	---	---	41.27
18	28.75	25.71	29.20	28.73	30.02	28.70	31.89	---	---	---	---	41.24
19	28.70	25.99	29.37	28.79	30.11	28.98	31.93	---	---	---	---	41.36
20	28.67	26.31	29.44	28.74	30.14	28.96	32.01	---	---	---	---	41.05
21	28.69	26.63	29.27	28.54	29.70	29.30	32.22	---	---	---	---	39.36
22	28.73	26.87	29.21	28.68	29.48	29.23	32.39	---	---	---	---	38.50
23	28.75	26.78	29.15	28.82	29.27	29.30	33.40	---	---	---	---	37.56
24	28.78	26.85	29.11	28.80	29.09	29.37	33.85	---	---	---	---	37.51
25	28.21	26.88	29.06	28.87	28.98	29.50	34.43	---	---	---	39.26	36.88
26	28.08	26.91	29.03	28.91	28.88	29.39	34.61	---	---	---	39.36	37.04
27	28.35	26.97	29.00	28.93	28.77	29.71	34.72	---	---	---	39.31	36.73
28	28.44	27.06	28.94	28.96	28.75	29.83	35.14	---	---	---	39.65	36.72
29	28.49	27.10	28.86	29.02	---	29.97	35.77	---	---	---	40.16	36.55
30	28.50	26.90	28.80	26.96	---	30.86	34.98	---	---	---	39.81	36.55
31	28.50	---	28.76	25.92	---	30.62	---	---	---	---	39.96	---
MEAN	28.41	27.00	28.56	28.45	27.79	29.01	32.29	35.40	---	---	39.64	39.75

WTR YR 1994 MEAN 30.58 HIGHEST 24.97 FEB. 7, 1994 LOWEST 41.97 SEPT. 10, 1994



GROUND-WATER LEVELS
RIO GRANDE DE LOIZA BASIN

451

182515065594100. Local number, 222.

LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Escuela Extensión El Comandante, and 0.74 mi southwest of Escuela Vistamar. Owner: U.S. Geological Survey, WRD, Name: Campo Rico TW-1.

AQUIFER.--Surficial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.80 ft (0.24 m) above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well.

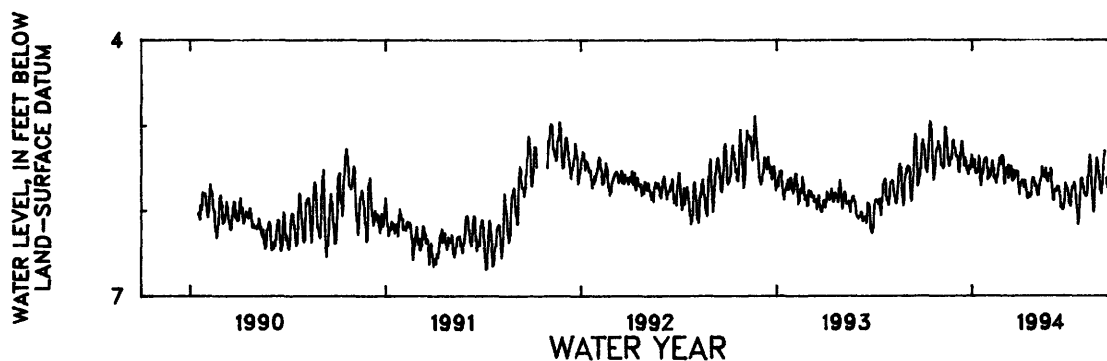
PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.42 ft (1.35 m) below land-surface datum, Aug. 31, 1986; lowest water level recorded, 7.42 ft (2.26 m) below land-surface datum, Feb. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.16	5.23	5.32	5.38	5.62	5.49	5.71	5.69	5.82	5.92	5.83	5.70
2	5.24	5.28	5.36	5.48	5.54	5.63	5.67	5.71	5.88	5.92	5.80	5.69
3	5.23	5.37	5.35	5.49	5.60	5.69	5.66	5.80	5.87	5.92	5.83	5.51
4	5.28	5.46	5.36	5.43	5.60	5.68	5.67	5.82	5.78	5.95	5.80	5.38
5	5.35	5.46	5.37	5.40	5.54	5.55	5.64	5.82	5.75	5.90	5.73	5.34
6	5.50	5.45	5.49	5.41	5.47	5.49	5.64	5.82	5.76	5.80	5.58	5.30
7	5.51	5.48	5.54	5.54	5.47	5.56	5.65	5.74	5.75	5.73	5.53	---
8	5.52	5.50	5.54	5.56	5.41	5.56	5.72	5.69	5.77	5.72	5.37	---
9	5.55	5.47	5.42	5.51	5.48	5.47	5.66	5.64	5.75	5.72	5.34	---
10	5.46	5.30	5.32	5.54	5.51	5.46	5.64	5.64	5.71	5.71	5.41	5.62
11	5.39	5.10	5.29	5.55	5.61	5.62	5.69	5.51	5.73	5.66	5.51	5.70
12	5.27	5.01	5.24	5.52	5.59	5.49	5.73	5.48	5.72	5.69	5.60	5.73
13	5.09	5.02	5.18	5.49	5.62	5.53	5.76	5.53	5.72	5.74	5.73	5.59
14	5.00	5.12	5.19	5.35	5.62	5.47	5.83	5.55	5.78	5.82	5.88	5.74
15	4.94	5.15	5.34	5.42	5.65	5.48	5.86	5.58	5.84	5.93	5.95	5.50
16	4.97	5.26	5.37	5.49	5.68	5.51	5.79	5.60	5.97	5.98	6.02	5.36
17	5.04	5.37	5.47	5.65	5.57	5.61	5.84	5.58	5.95	6.03	5.96	5.33
18	5.16	5.45	5.46	5.71	5.61	5.65	5.84	5.52	5.97	6.17	5.80	5.51
19	5.38	5.47	5.37	5.66	5.51	5.64	5.80	5.50	5.98	6.11	5.72	5.35
20	5.47	5.46	5.42	5.51	5.46	5.52	5.84	5.62	5.99	6.03	5.49	5.17
21	5.61	5.37	5.48	5.57	5.38	5.53	5.82	5.63	5.96	5.92	5.39	5.17
22	5.64	5.38	5.52	5.51	5.40	5.62	5.80	5.61	5.92	5.82	5.38	5.33
23	5.57	5.39	5.49	5.42	5.38	5.57	5.72	5.66	5.88	5.72	5.43	5.44
24	5.46	5.36	5.53	5.40	5.46	5.55	5.65	5.56	5.77	5.63	5.48	5.42
25	5.36	5.25	5.57	5.42	5.41	5.53	5.61	5.58	5.67	5.61	5.54	5.45
26	5.29	5.18	5.47	5.39	5.35	5.55	5.61	5.57	5.70	5.62	5.58	5.50
27	5.27	5.17	5.48	5.38	5.35	5.54	5.62	5.59	5.72	5.68	5.61	5.48
28	5.26	5.25	5.51	5.40	5.36	5.59	5.66	5.50	5.74	5.71	5.66	5.40
29	5.27	5.26	5.49	5.50	---	5.69	5.71	5.51	5.76	5.73	5.76	5.32
30	5.17	5.26	5.40	5.50	---	5.72	5.70	5.67	5.81	5.80	5.75	5.15
31	5.27	---	5.34	5.64	---	5.81	---	5.71	---	5.79	5.80	---
MEAN	5.31	5.31	5.41	5.49	5.51	5.57	5.72	5.63	5.81	5.82	5.65	5.45

WTR YR 1994 MEAN 5.56 HIGHEST 4.94 OCT. 15, 1993 LOWEST 6.19 JUNE 23, 1994



GROUND-WATER LEVELS
RIO GRANDE DE LOIZA BASIN

181513065554601. Local number, CJ-TW3B.

LOCATION.--Lat 18°15'13", long 65°55'46", Hydrologic Unit 21010005, 2.86 mi east of Gurabo plaza, 3.57 mi southwest of Hwy 186 km 4.7, and 1.39 mi southwest of Hwy 185 km 15.7. Owner: U.S. Geological Survey, WRD, Name: CJ-TW3B.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-38 ft (0-11.6 m) screened 25-35 ft (7.62 m). Depth 38 ft (11.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 187 ft (57.0 m) above mean sea level, from topographic map.

Measuring point: Top of casing 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 17, 1991.

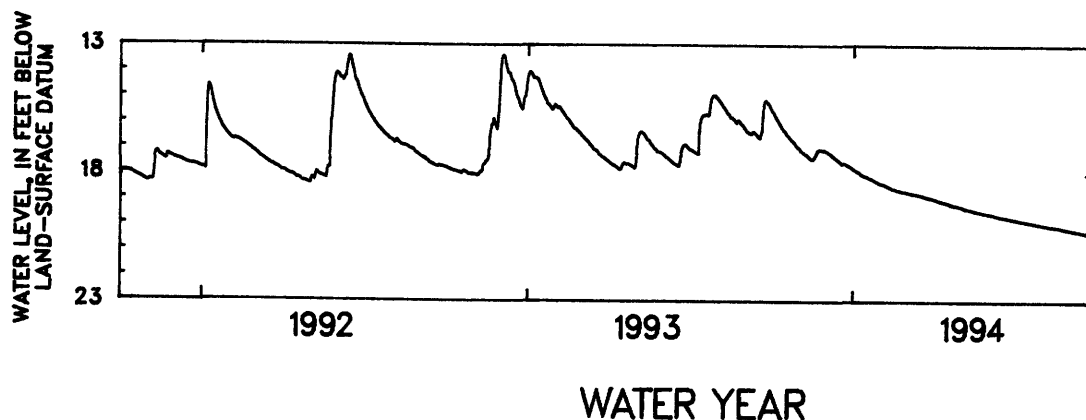
PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.4 ft (4.09 m) below land-surface datum, June 13, 14, Dec. 3, 4, 1992; lowest water level recorded, 20.31 ft (6.19 m) below land-surface datum, Sept. 19, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.52	17.02	17.13	17.84	18.40	18.73	18.99	19.29	19.56	19.78	19.99	20.18
2	15.58	17.08	17.14	17.86	18.41	18.74	19.00	19.30	19.56	19.79	20.00	20.19
3	15.64	17.13	17.17	17.88	18.42	18.75	19.01	19.31	19.57	19.80	20.00	20.20
4	15.69	17.15	17.19	17.91	18.43	18.76	19.03	19.34	19.58	19.80	20.01	20.21
5	15.76	17.18	17.21	17.92	18.46	18.76	19.04	19.34	19.59	19.81	20.01	20.21
6	15.84	17.19	17.24	17.94	18.47	18.78	19.05	19.36	19.59	19.82	20.02	20.21
7	15.89	17.23	17.28	17.96	18.49	18.78	19.06	19.36	19.60	19.82	20.03	20.23
8	15.95	17.25	17.31	17.99	18.51	18.79	19.08	19.37	19.61	19.83	20.04	20.23
9	16.02	17.27	17.33	18.03	18.52	18.79	19.08	19.38	19.63	19.84	20.04	20.24
10	16.07	17.31	17.37	18.05	18.54	18.80	19.09	19.39	19.63	19.85	20.05	20.25
11	16.12	17.34	17.39	18.06	18.56	18.81	19.10	19.39	19.64	19.85	20.05	20.25
12	16.19	17.38	17.41	18.08	18.57	18.82	19.11	19.40	19.65	19.86	20.05	20.26
13	16.24	17.41	17.44	18.09	18.59	18.82	19.12	19.41	19.66	19.87	20.06	20.26
14	16.29	17.43	17.47	18.10	18.60	18.83	19.13	19.42	19.67	19.88	20.06	20.27
15	16.32	17.45	17.50	18.11	18.61	18.84	19.14	19.42	19.68	19.87	20.06	20.28
16	16.35	17.45	17.52	18.12	18.62	18.84	19.15	19.44	19.68	19.88	20.07	20.28
17	16.42	17.39	17.55	18.16	18.63	18.85	19.16	19.44	19.69	19.89	20.07	20.29
18	16.48	17.34	17.59	18.17	18.65	18.86	19.17	19.45	19.69	19.90	20.08	20.30
19	16.51	17.27	17.61	18.18	18.66	18.86	19.19	19.46	19.70	19.90	20.08	20.31
20	16.55	17.19	17.62	18.20	18.66	18.88	19.19	19.47	19.71	19.91	20.09	20.23
21	16.60	17.14	17.61	18.21	18.67	18.89	19.21	19.48	19.71	19.92	20.10	20.12
22	16.64	17.10	17.62	18.23	18.68	18.90	19.21	19.48	19.72	19.93	20.11	20.13
23	16.68	17.07	17.64	18.25	18.69	18.91	19.23	19.49	19.73	19.93	20.11	20.13
24	16.72	17.07	17.66	18.27	18.70	18.92	19.22	19.50	19.73	19.94	20.12	20.13
25	16.76	17.07	17.68	18.30	18.70	18.93	19.24	19.51	19.74	19.95	20.13	20.13
26	16.78	17.08	17.70	18.32	18.71	18.94	19.24	19.52	19.75	19.95	20.13	20.13
27	16.82	17.09	17.72	18.33	18.72	18.95	19.25	19.52	19.76	19.96	20.15	20.13
28	16.89	17.10	17.73	18.35	18.72	18.95	19.26	19.53	19.76	19.96	20.15	20.13
29	16.94	17.09	17.75	18.37	---	18.96	19.27	19.54	19.77	19.97	20.16	20.12
30	16.97	17.11	17.78	18.38	---	18.97	19.29	19.55	19.78	19.98	20.16	20.11
31	17.00	---	17.82	18.40	---	18.98	---	19.55	---	19.98	20.18	---
MEAN	16.33	17.21	17.49	18.13	18.59	18.85	19.14	19.43	19.67	19.88	20.08	20.20

WTR YR 1994 MEAN 18.75 HIGHEST 15.49 OCT. 1, 11993 LOWEST 20.31 SEPT. 19, 1994



GROUND-WATER LEVELS

453

RIO GRANDE DE LOIZA BASIN

181352066025300. Local number, CJ-TW19A.

LOCATION.--Lat 18°13'52", long 66°02'53", Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.30 mi southeast of Hwy 156 km 59.1. Owner: U.S. Geological Survey, WRD, Name: CJ-TW19A, Boneville.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-67 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67 ft (20.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m) above mean sea level, from topographic map.

Measuring point: Top of casing 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well drilled on September 1, 1989. Automatic digital recorder installed on September 18, 1991. Aquifer test conducted on Aug. 13, 1990.

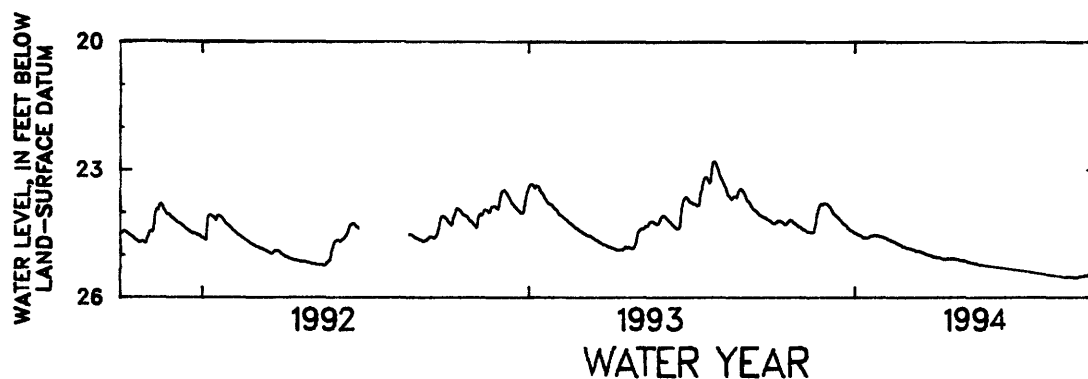
PERIOD OF RECORD.-- June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.78 ft (6.94 m) below land-surface datum, July 27, 1993; lowest water level recorded, 25.54 ft (7.78 m) below land-surface datum, Sept. 4, 5, 6, 7, 8, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24.25	24.35	23.80	24.49	24.57	24.85	25.05	25.13	---	---	---	25.53
2	24.26	24.38	23.82	24.49	24.59	24.85	25.06	25.14	---	---	---	25.53
3	24.26	24.39	23.84	24.50	24.60	24.85	25.06	25.14	---	---	---	25.53
4	24.24	24.41	23.86	24.52	24.60	24.86	25.06	25.14	---	---	---	25.54
5	24.23	24.41	23.89	24.53	24.61	24.86	25.06	25.15	---	---	---	25.54
6	24.20	24.42	23.94	24.54	24.61	24.87	25.07	25.15	---	---	---	25.54
7	24.20	24.43	23.99	24.54	24.63	24.88	25.08	25.16	---	---	---	25.54
8	24.19	24.45	24.02	24.55	24.64	24.88	25.09	25.17	---	---	---	25.53
9	24.20	24.46	24.04	24.57	24.64	24.89	25.09	25.17	---	---	---	25.52
10	24.22	24.46	24.06	24.59	24.67	24.91	25.10	25.18	---	---	---	25.52
11	24.22	24.46	24.08	24.60	24.67	24.91	25.10	25.19	---	---	---	25.52
12	24.24	24.47	24.10	24.60	24.67	24.91	25.10	25.19	---	---	---	25.51
13	24.26	24.47	24.12	24.59	24.69	24.92	25.10	25.19	---	---	---	25.51
14	24.28	24.47	24.14	24.59	24.69	24.91	25.09	25.20	---	---	---	25.50
15	24.28	24.47	24.17	24.59	24.70	24.92	25.09	25.20	---	---	---	25.50
16	24.27	24.45	24.18	24.59	24.72	24.93	25.09	25.21	---	---	---	25.49
17	24.24	24.35	24.21	24.58	24.73	24.94	25.09	25.21	---	---	---	25.49
18	24.22	24.26	24.24	24.56	24.74	24.94	25.09	25.22	---	---	---	25.49
19	24.20	24.10	24.26	24.55	24.75	24.95	25.09	25.22	---	---	---	25.49
20	24.18	24.01	24.28	24.55	24.76	24.97	25.09	25.23	---	---	---	25.47
21	24.18	23.92	24.29	24.55	24.77	24.98	25.09	25.24	---	---	---	25.42
22	24.19	23.87	24.31	24.54	24.78	24.98	25.09	---	---	---	---	25.36
23	24.22	23.83	24.33	24.54	24.80	24.99	25.10	---	---	---	---	25.32
24	24.24	23.80	24.37	24.54	24.81	25.00	25.10	---	---	---	---	25.30
25	24.25	23.79	24.38	24.55	24.81	25.01	25.11	---	---	---	25.53	25.28
26	24.27	23.81	24.41	24.54	24.82	25.01	25.11	---	---	---	25.53	25.28
27	24.28	23.80	24.43	24.55	24.83	25.02	25.11	---	---	---	25.53	25.27
28	24.30	23.78	24.43	24.55	24.84	25.02	25.13	---	---	---	25.52	25.27
29	24.32	23.78	24.44	24.57	---	25.04	25.13	---	---	---	25.52	25.27
30	24.34	23.79	24.46	24.57	---	25.05	25.13	---	---	---	25.52	25.27
31	24.35	---	24.48	24.57	---	25.05	---	---	---	---	25.53	---
MEAN	24.24	24.19	24.17	24.55	24.70	24.94	25.09	25.18	---	---	25.53	25.44

WTR YR 1994 MEAN 24.73 HIGHEST 23.77 NOV. 29, 1993 LOWEST 25.54 SEPT. 4, 5, 6, 7, 8, 1994



GROUND-WATER LEVELS

RIO HUMACAO TO RIO SECO BASINS

175858066100200. Local number, 6.

LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2. Owner: Doctor Bruno, Name: Juana S.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum. After Aug. 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well.

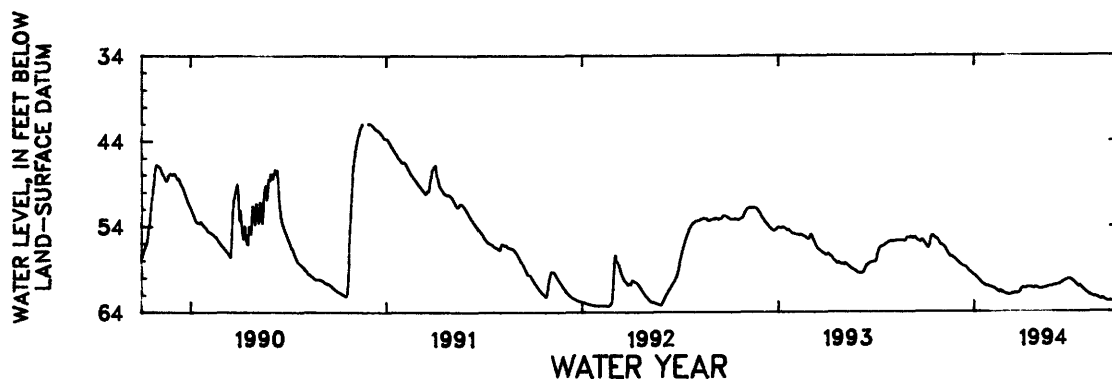
PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.99 m) below land-surface datum, Dec. 10, 1979; lowest water level recorded, 65.95 ft (20.10 m) below land-surface datum, June 2, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.94	56.18	58.08	59.73	61.12	61.93	61.25	61.28	60.89	60.30	61.86	62.61
2	56.05	56.21	58.14	59.77	61.13	61.95	61.24	61.31	60.90	60.34	61.91	62.65
3	56.13	56.23	58.19	59.82	61.15	61.97	61.24	61.33	60.89	60.39	61.96	62.69
4	56.22	56.26	58.25	59.87	61.17	61.99	61.24	61.34	60.88	60.45	62.00	62.73
5	56.31	56.30	58.32	59.92	61.19	61.99	61.24	61.35	60.85	60.50	62.05	62.76
6	56.40	56.35	58.39	59.98	61.22	62.01	61.24	61.35	60.82	60.56	62.09	62.79
7	56.48	56.43	58.45	60.04	61.25	62.02	61.24	61.33	60.81	60.62	62.12	62.79
8	56.53	56.53	58.51	60.10	61.29	62.01	61.21	61.30	60.79	60.69	62.15	62.78
9	56.47	56.63	58.59	60.17	61.33	62.00	61.17	61.27	60.77	60.76	62.17	62.78
10	56.22	56.76	58.64	60.25	61.38	61.99	61.15	61.26	60.73	60.83	62.21	62.76
11	55.82	56.89	58.66	60.32	61.43	61.97	61.13	61.25	60.69	60.90	62.24	62.74
12	55.42	57.00	58.68	60.38	61.49	61.93	61.14	61.24	60.63	60.97	62.20	62.74
13	55.23	57.12	58.70	60.45	61.52	61.91	61.15	61.22	60.57	61.04	62.19	62.75
14	55.12	57.23	58.72	60.53	61.57	61.89	61.15	61.21	60.52	61.10	62.22	62.78
15	55.05	57.34	58.75	60.60	61.62	61.88	61.15	61.19	60.49	61.10	62.24	62.81
16	55.05	57.43	58.78	60.67	61.66	61.87	61.15	61.18	60.46	60.95	62.26	62.83
17	55.12	57.53	58.84	60.72	61.68	61.86	61.16	61.15	60.43	60.97	62.29	62.87
18	55.20	57.51	58.89	60.77	61.53	61.86	61.17	61.12	60.39	61.05	62.32	62.90
19	55.27	57.53	58.96	60.81	61.51	61.86	61.19	61.10	60.33	61.12	62.36	62.92
20	55.36	57.56	59.04	60.86	61.57	61.85	61.22	61.08	60.29	61.19	62.40	62.94
21	55.40	57.59	59.11	60.90	61.63	61.84	61.24	61.07	60.25	61.26	62.43	62.98
22	55.40	57.61	59.19	60.94	61.68	61.84	61.26	61.05	60.22	61.32	62.46	63.00
23	55.43	57.65	59.25	60.97	61.72	61.83	61.22	61.05	60.20	61.38	62.49	63.03
24	55.48	57.69	59.30	61.00	61.77	61.81	61.18	61.04	60.18	61.43	62.52	63.06
25	55.56	57.74	59.33	60.98	61.82	61.78	61.21	61.04	60.16	61.48	62.55	63.08
26	55.66	57.80	59.38	60.97	61.86	61.74	61.23	61.04	60.16	61.53	62.54	63.11
27	55.77	57.85	59.45	60.99	61.89	61.69	61.18	61.01	60.17	61.58	62.39	63.14
28	55.89	57.91	59.50	61.02	61.91	61.62	61.18	60.97	60.20	61.64	62.41	63.16
29	56.00	57.96	59.56	61.05	---	61.39	61.22	60.94	60.23	61.70	62.47	63.18
30	56.09	58.02	59.62	61.08	---	61.31	61.26	60.91	60.26	61.75	62.53	63.20
31	56.16	---	59.68	61.10	---	61.27	---	60.90	---	61.81	62.57	---
MEAN	55.75	57.16	58.87	60.54	61.50	61.83	61.20	61.16	60.51	61.06	62.28	62.89

WTR YR 1994 MEAN 60.39 HIGHEST 55.03 OCT. 16, 1993 LOWEST 63.21 SEPT. 30, 1994



GROUND-WATER LEVELS

455

RIO HUMACAO TO RIO SECO BASINS

180415065513900. Local number, 96.

LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López.

Owner: P.R. Aqueduct and Sewer Authority, Name: USGS TW-2 or Yabucoa 7.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-10 ft (0-3.05 m), diameter 6 in (0.15 m), cased about 0-183 ft (0-55.79 m), perforated 56-81 ft (17.07-24.70 m), 102-123 ft (31.10-37.50 m), 144-181 ft (43.90-55.18 m). Depth 181 ft (55.18 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 4.00 ft (1.22 m) above land-surface.

REMARKS.--Recording observation well.

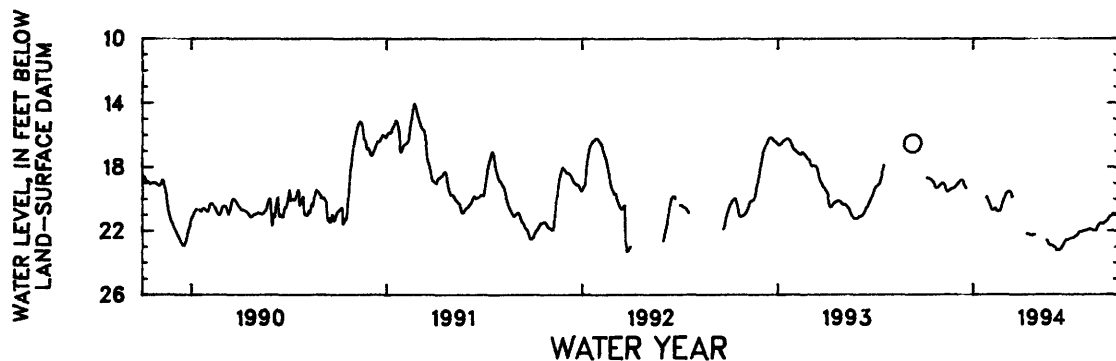
PERIOD OF RECORD.--April 25, 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.10 ft (3.99 m) below land-surface datum, Dec. 2, 1987; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	19.08	19.10	---	20.31	19.85	---	---	23.03	22.48	21.95	21.56
2	---	19.06	19.07	---	20.38	19.77	---	---	23.04	22.47	21.94	21.53
3	---	19.04	19.04	---	20.51	19.70	---	---	23.06	22.46	21.92	21.50
4	---	18.99	18.98	---	20.57	19.64	---	---	23.10	22.46	21.91	21.47
5	---	18.99	18.94	---	20.67	19.59	---	---	23.15	22.46	21.90	21.45
6	---	19.03	18.90	---	20.70	19.57	---	---	23.21	22.45	21.89	21.43
7	18.66	19.07	18.87	---	20.70	19.55	---	---	23.24	22.43	21.88	21.39
8	18.69	19.11	18.81	---	20.68	19.54	---	---	23.24	22.41	21.88	21.37
9	18.69	19.16	18.79	---	20.66	19.53	---	---	23.22	22.38	21.89	21.35
10	18.70	19.31	18.79	---	20.62	19.53	---	---	23.20	22.35	21.91	21.29
11	18.71	19.42	18.80	---	20.59	19.55	---	---	23.20	22.32	21.93	21.23
12	18.73	19.50	18.81	---	20.59	19.61	22.20	---	23.23	22.31	21.95	21.17
13	18.75	19.53	18.84	---	20.67	19.69	22.20	---	23.23	22.29	21.97	21.12
14	18.77	19.53	18.95	---	20.73	19.79	22.20	---	23.15	22.27	21.98	21.08
15	18.80	19.51	19.09	---	20.77	19.88	22.22	---	23.08	22.24	21.99	21.11
16	18.84	19.48	19.15	---	20.78	---	22.24	---	23.02	22.18	21.99	21.11
17	18.88	19.46	19.21	---	20.76	---	22.26	---	22.97	22.13	21.99	21.07
18	18.92	19.43	19.26	---	20.76	---	22.27	---	22.90	22.08	21.98	21.03
19	18.97	19.40	19.31	---	20.78	---	22.29	22.60	22.84	22.07	21.95	20.96
20	19.03	19.37	---	---	20.75	---	22.28	22.67	22.76	22.06	21.88	20.91
21	19.16	19.37	---	---	20.69	---	22.28	22.76	22.69	22.06	21.78	20.93
22	19.25	19.36	---	---	20.61	---	22.26	22.83	22.63	22.07	21.72	20.92
23	19.30	19.34	---	---	20.51	---	22.26	22.87	22.58	22.06	21.66	20.92
24	19.30	19.33	---	---	20.39	---	22.25	22.90	22.57	22.03	21.61	20.94
25	19.30	19.32	---	---	20.27	---	22.25	22.92	22.56	22.02	21.57	20.93
26	19.29	19.30	---	19.89	20.17	---	22.25	22.93	22.56	22.00	21.53	20.94
27	19.27	19.28	---	19.93	20.05	---	---	22.92	22.57	22.00	21.52	20.92
28	19.24	19.25	---	19.99	19.95	---	---	22.91	22.55	21.99	21.52	20.90
29	19.18	19.19	---	20.07	---	---	---	22.92	22.52	21.98	21.54	20.88
30	19.14	19.14	---	20.14	---	---	---	22.96	22.51	21.96	21.56	20.84
31	19.10	---	---	20.21	---	---	---	23.01	---	21.96	21.58	---
MEAN	18.99	19.28	18.98	20.04	20.56	19.65	22.25	22.86	22.92	22.21	21.82	21.14

WTR YR 1994 MEAN 20.96 HIGHEST 18.66 OCT. 7, 1993 LOWEST 23.25 JUNE 13, 1994



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

17582906232200. Local number, 87.

LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.10 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Escuela Playita Cortada, and 1.07 mi southeast of Estación Experimental Santa Isabel. Owner:

Francisco Alomar, Name: Alomar 1.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 35.32 ft (10.77 m) above mean sea level.

Measuring point: Bottom of clean-out shelter door, 2.50 ft (0.76 m) above land-surface datum. Prior to August 1981, top of recorder shelter floor, 4.00 ft (1.22 m) above land-surface datum.

REMARKS.--Recording observation well.

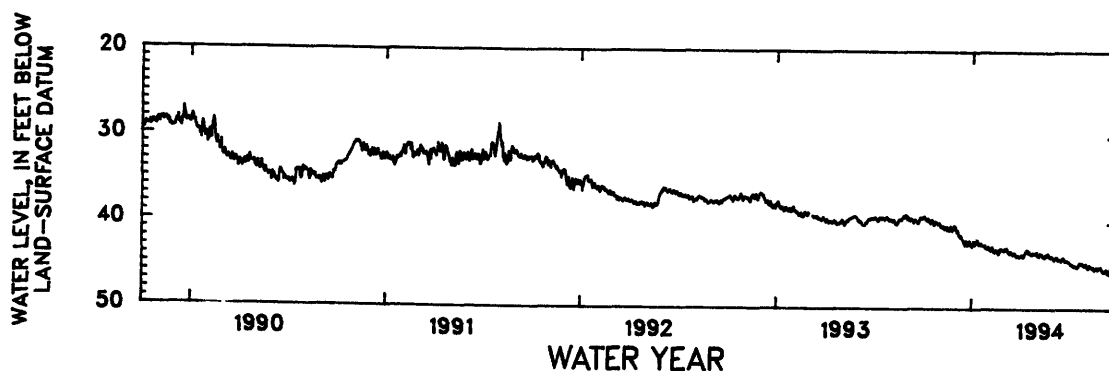
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m) below land-surface datum, Dec. 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.35	39.98	40.43	42.59	43.00	43.24	43.85	43.34	44.08	44.48	44.69	45.55
2	39.37	40.12	40.74	42.20	42.98	42.99	43.78	43.38	44.11	44.63	44.91	45.55
3	39.35	40.21	40.95	42.10	43.09	43.03	43.70	43.73	44.24	44.69	44.99	45.60
4	39.24	40.47	41.05	42.26	43.18	43.14	43.66	43.71	44.19	44.77	45.10	45.49
5	39.46	40.44	40.84	42.54	42.92	43.03	43.84	43.73	43.97	44.71	45.23	45.51
6	39.51	40.46	41.05	42.45	42.79	42.92	43.82	43.82	43.92	44.74	45.11	45.57
7	39.61	40.50	41.38	42.32	42.74	42.99	43.91	43.65	43.97	44.76	44.85	45.36
8	39.52	40.36	41.42	42.25	43.07	43.27	43.65	43.51	43.93	44.92	44.84	45.31
9	39.74	40.38	41.53	42.00	43.28	43.38	43.46	43.53	44.10	44.87	44.91	45.57
10	39.56	40.53	41.62	41.92	43.25	43.28	43.36	43.60	44.25	44.89	45.08	45.77
11	39.48	40.69	41.43	42.20	43.28	43.30	43.22	43.58	44.30	45.00	45.07	45.45
12	39.64	40.47	41.72	42.38	43.39	43.59	43.15	43.74	44.15	44.96	45.09	45.46
13	39.83	40.66	41.80	42.51	43.11	43.45	43.06	43.86	44.24	44.96	45.21	45.57
14	39.88	40.54	41.99	42.48	43.10	43.30	43.23	43.78	44.29	45.03	45.12	45.88
15	39.96	40.42	42.06	42.46	43.18	43.41	43.41	43.84	44.42	45.11	45.08	45.42
16	40.03	40.82	42.24	42.32	43.20	43.55	43.37	43.95	44.35	45.09	45.26	45.18
17	39.75	40.74	42.38	42.37	43.22	43.60	43.22	43.71	44.18	44.99	45.36	45.14
18	39.62	40.65	42.59	42.59	43.56	43.69	43.36	43.63	44.16	44.91	45.31	45.05
19	39.87	40.83	42.31	42.58	43.56	43.57	43.58	43.70	43.99	44.73	45.16	44.90
20	39.75	40.83	42.03	42.56	43.30	43.47	43.52	43.80	44.00	44.65	45.22	44.80
21	40.00	40.64	42.45	42.57	43.02	43.50	43.58	43.69	44.12	44.60	45.07	44.66
22	40.23	40.38	42.58	42.64	42.98	43.56	43.64	43.50	44.29	44.64	45.15	44.58
23	40.11	40.49	42.54	42.58	43.00	43.78	43.63	43.57	44.41	44.73	45.35	44.53
24	39.91	40.68	42.54	42.51	42.98	43.77	43.41	43.73	44.37	44.71	45.30	44.44
25	39.83	40.90	42.47	42.87	43.06	43.86	43.43	43.84	44.40	44.61	45.10	44.33
26	40.04	40.75	42.03	42.82	43.18	43.79	43.52	43.94	44.33	44.70	45.10	44.27
27	39.92	40.61	42.12	42.84	43.14	43.76	43.55	43.96	44.32	44.78	45.11	44.31
28	40.05	40.41	42.54	42.92	43.16	43.72	43.56	43.87	44.44	44.91	45.13	44.28
29	40.05	40.29	42.55	42.96	---	43.85	43.49	43.82	44.46	44.94	45.05	44.54
30	40.16	40.39	42.47	42.73	---	43.95	43.48	43.83	44.46	44.84	45.29	44.64
31	40.14	---	42.73	42.72	---	43.84	---	43.94	---	44.69	45.39	---
MEAN	39.77	40.52	41.89	42.49	43.13	43.47	43.51	43.72	44.21	44.81	45.12	45.09

WTR YR 1994 MEAN 43.14 HIGHEST 39.24 OCT. 4, 1993 LOWEST 45.90 SEPT. 14, 1994



GROUND-WATER LEVELS

457

RIO SALINAS TO RIO JACAGUAS BASINS

180002066132200. Local number, HW-TW-01.

LOCATION.--Lat 18°00'02", long 66°13'22", Hydrologic Unit 21010004, 3.30 mi southwest of Cerro Guaraco, 8.71 mi southwest of Cayey plaza, and 2.80 mi southeast of Hwy 1 km 82.3 on Rabo del Buey. Owner: U.S. Geological Survey, WRD, Name: HW-TW-01.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-39.5 ft (0-12.0 m), cased 4 in (0.10 m), 0-38.2 ft (0-11.6 m), screened 32-37 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 190 ft (58.0 m) above mean sea level.

Measuring point: Hole on side of 4 in (0.10 m) casing, 2.84 ft (0.87 m) above land-surface datum. Prior October 13, 1988, top of shelter floor, 3.48 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

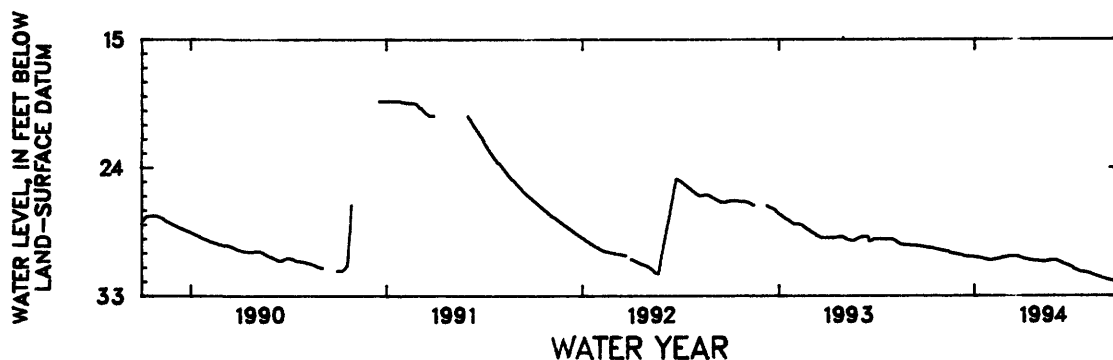
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.34 ft (5.89 m) below land-surface datum, Dec. 18, 1990 to Jan. 26, 1991; lowest water level recorded, 31.98 ft (9.75 m) below land-surface datum, Sept. 17, 20, 21, 22, 23, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.59	29.80	30.09	30.28	30.49	30.27	30.36	30.56	30.50	30.99	31.40	31.81
2	29.60	29.81	30.10	30.28	30.49	30.26	30.38	30.57	30.51	31.01	31.41	31.83
3	29.60	29.82	30.10	30.28	30.49	30.25	30.40	30.58	30.53	31.02	31.42	31.84
4	29.61	29.82	30.11	30.29	30.47	30.25	30.40	30.57	30.55	31.04	31.44	31.86
5	29.62	29.83	30.12	30.30	30.46	30.22	30.41	30.58	30.56	31.14	31.45	31.86
6	29.61	29.84	30.13	30.30	30.45	30.22	30.42	30.58	30.58	31.14	31.47	31.88
7	29.61	29.84	30.13	30.30	30.44	30.22	30.43	30.59	30.59	31.15	31.48	31.89
8	29.62	29.85	30.14	30.30	30.42	30.22	30.44	30.59	30.61	31.16	31.51	31.90
9	29.61	29.86	30.16	30.31	30.43	30.22	30.44	30.60	30.62	31.18	31.52	31.89
10	29.62	29.87	30.17	30.32	30.43	30.22	30.45	30.59	30.64	31.20	31.53	31.90
11	29.63	29.87	30.18	30.32	30.43	30.22	30.45	30.60	30.66	31.20	31.54	31.93
12	29.64	29.88	30.19	30.32	30.42	30.22	30.48	30.60	30.68	31.22	31.56	31.93
13	29.64	29.90	30.20	30.34	30.40	30.23	30.48	30.60	30.69	31.24	31.57	31.94
14	29.65	29.92	30.21	30.35	30.39	30.22	30.49	30.60	30.71	31.26	31.58	31.95
15	29.66	29.93	30.21	30.35	30.39	30.22	30.50	30.58	30.76	31.27	31.59	31.97
16	29.66	29.96	30.22	30.36	30.38	30.22	30.50	30.57	30.76	31.29	31.61	31.97
17	29.67	29.98	30.23	30.38	30.37	30.22	30.50	30.56	30.77	31.30	31.62	31.97
18	29.69	29.99	30.23	30.39	30.36	30.22	30.51	30.55	30.78	31.32	31.64	31.97
19	29.69	30.00	30.23	30.40	30.36	30.22	30.51	30.55	30.79	31.33	31.65	31.97
20	29.70	30.01	30.23	30.42	30.34	30.22	30.53	30.54	30.82	31.34	31.66	31.98
21	29.71	30.01	30.23	30.43	30.33	30.22	30.54	30.53	30.83	31.33	31.68	31.98
22	29.72	30.02	30.23	30.43	30.31	30.22	30.55	30.52	30.84	31.34	31.69	31.98
23	29.73	30.03	30.23	30.44	30.31	30.24	30.55	30.52	30.84	31.34	31.71	31.98
24	29.74	30.04	30.23	30.44	30.30	30.26	30.55	30.51	30.86	31.34	31.71	31.96
25	29.75	30.04	30.23	30.44	30.30	30.27	30.55	30.50	30.87	31.34	31.73	31.95
26	29.76	30.05	30.23	30.44	30.28	30.28	30.55	30.50	30.89	31.35	31.74	31.94
27	29.77	30.06	30.23	30.48	30.28	30.29	30.55	30.50	30.89	31.36	31.76	31.93
28	29.78	30.07	30.24	30.48	30.27	30.31	30.55	30.50	30.93	31.36	31.77	31.93
29	29.78	30.07	30.24	30.49	---	30.32	30.55	30.50	30.94	31.38	31.79	31.92
30	29.79	30.08	30.24	30.49	---	30.34	30.56	30.50	30.96	31.39	31.79	31.91
31	29.80	---	30.28	30.50	---	30.36	---	30.50	---	31.39	31.80	---
MEAN	29.68	29.94	30.19	30.38	30.39	30.25	30.49	30.55	30.73	31.25	31.61	31.92

WTR YR 1994 MEAN 30.61 HIGHEST 29.59 OCT. 1, 2, 1994 LOWEST 31.98 SEPT. 17, 20, 21, 22, 23, 1994



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

180001066122002 Local number, HW-TW-03C.

LOCATION.--Lat 18°00'01", long 66°12'20", Hydrologic Unit 21010004, 8.27 mi southwest of Cayey plaza, 2.38 mi southwest of Cerro Garau, and 3.45 mi southeast of Hwy 1 km 82.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-03C.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-220 ft (0-67.0 m), cased 4 in (0.10 m), 0-150 ft (0-45.7 m), open hole 150-220 ft (45.7-67.0 m). Depth 220 ft (67.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 270 ft (82.6 m) above mean sea level.

Measuring point: Top of shelter floor, 3.32 ft (1.01 m) above land-surface datum.

REMARKS.--Recording observation well. Aquifer test performed during May 24, 25, 26, 1989.

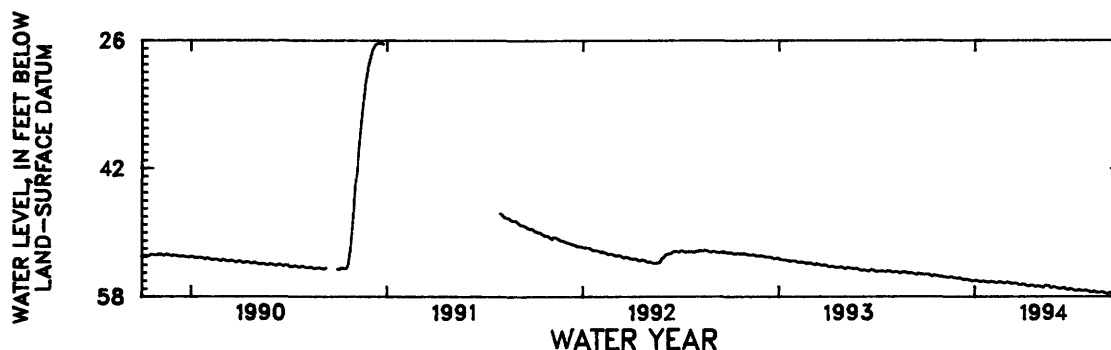
PERIOD OF RECORD.--December 15, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.29 ft (8.01 m) below land-surface datum, Dec. 15, 1990; lowest water level recorded, 57.68 ft (17.6 m) below land-surface datum, Sept. 17, 18, 19, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55.19	55.43	55.66	55.97	56.07	56.17	56.41	56.66	56.84	57.08	57.29	57.55
2	55.19	55.43	55.64	55.92	56.08	56.15	56.44	56.70	56.86	57.10	57.32	57.59
3	55.18	55.46	55.65	55.92	56.11	56.15	56.45	56.71	56.91	57.15	57.37	57.60
4	55.18	55.46	55.65	55.94	56.12	56.17	56.44	56.72	56.93	57.19	57.39	57.61
5	55.19	55.48	55.64	55.97	56.13	56.20	56.47	56.76	56.95	57.22	57.40	57.62
6	55.21	55.48	55.69	55.97	56.17	56.23	56.54	56.78	56.96	57.19	57.42	57.59
7	55.24	55.49	55.73	55.99	56.20	56.28	56.58	56.79	56.98	57.20	57.41	57.56
8	55.24	55.53	55.78	56.03	56.23	56.29	56.59	56.79	56.99	57.23	57.39	57.51
9	55.27	55.54	55.80	56.05	56.22	56.30	56.61	56.80	56.96	57.23	57.37	57.49
10	55.31	55.56	55.84	56.07	56.23	56.34	56.61	56.78	56.94	57.21	57.34	57.48
11	55.35	55.56	55.86	56.08	56.23	56.35	56.62	56.65	56.92	57.19	57.33	57.51
12	55.39	55.57	55.87	56.07	56.20	56.35	56.63	56.63	56.91	57.17	57.34	57.56
13	55.42	55.58	55.86	56.04	56.18	56.33	56.62	56.60	56.89	57.14	57.36	57.61
14	55.44	55.54	55.83	56.05	56.14	56.32	56.59	56.60	56.88	57.15	57.37	57.64
15	55.41	55.53	55.81	56.04	56.13	56.31	56.58	56.60	56.90	57.15	57.41	57.63
16	55.36	55.49	55.81	56.04	56.14	56.29	56.56	56.60	56.90	57.17	57.47	57.66
17	55.28	55.50	55.80	56.04	56.13	56.28	56.56	56.61	56.88	57.21	57.48	57.68
18	55.29	55.51	55.81	56.04	56.14	56.29	56.56	56.62	56.92	57.20	57.46	57.68
19	55.31	55.51	55.84	56.05	56.15	56.32	56.58	56.65	57.01	57.21	57.47	57.66
20	55.34	55.51	55.86	56.08	56.19	56.33	56.61	56.70	57.04	57.23	57.47	57.52
21	55.36	55.54	55.89	56.09	56.20	56.35	56.65	56.78	57.07	57.23	57.47	57.48
22	55.37	55.59	55.91	56.09	56.23	56.38	56.70	56.83	57.11	57.24	57.47	57.47
23	55.38	55.60	55.93	56.12	56.26	56.42	56.72	56.86	57.10	57.24	57.45	57.46
24	55.40	55.60	55.95	56.15	56.26	56.47	56.73	56.85	57.07	57.23	57.44	57.47
25	55.41	55.63	55.96	56.19	56.28	56.50	56.73	56.84	57.05	57.21	57.40	57.48
26	55.44	55.63	56.00	56.17	56.27	56.51	56.70	56.82	57.04	57.19	57.39	57.55
27	55.44	55.65	56.03	56.15	56.25	56.51	56.68	56.80	57.01	57.19	57.40	57.59
28	55.47	55.67	56.01	56.16	56.23	56.51	56.66	56.75	57.01	57.20	57.42	57.61
29	55.49	55.66	55.98	56.15	---	56.48	56.65	56.75	57.01	57.23	57.45	57.62
30	55.50	55.67	55.98	56.13	---	56.45	56.64	56.76	57.05	57.25	57.49	57.66
31	55.46	---	55.98	56.10	---	56.41	---	56.79	---	57.27	57.51	---
MEAN	55.34	55.55	55.84	56.06	56.18	56.34	56.60	56.73	56.97	57.20	57.41	57.57

WTR YR 1994 MEAN 56.48 HIGHEST 55.06 OCT. 1, 1993 LOWEST 57.68 SEPT. 17, 18, 19, 1994



GROUND-WATER LEVELS

459

RIO SALINAS TO RIO JACAGUAS BASINS

175947066130601 Local number, HW-TW-05B.

LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.70 mi northeast of Central Aguirre Church, 6.16 mi northwest of Escuela de Guayama, and 2.70 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-05B.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52 ft (0-15.8 m), cased 4 in (0.10 m), 0-51 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 145 ft (44.2 m) above mean sea level.

Measuring point: Hole on side of casing, 3.00 ft (0.91 m) above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

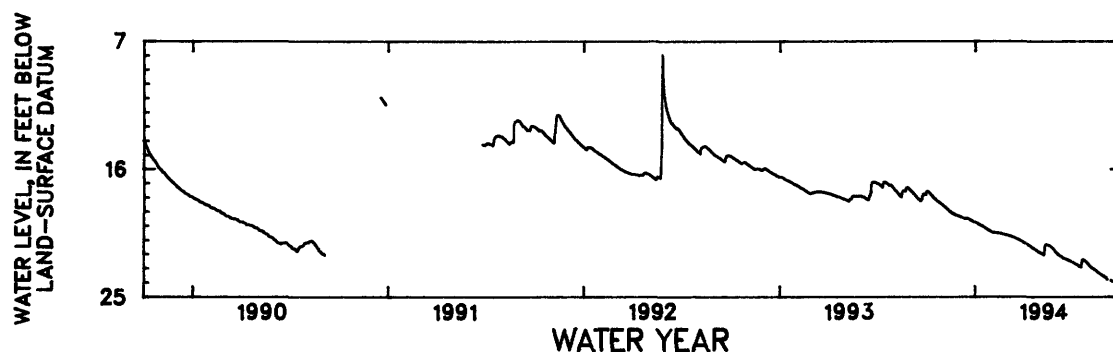
PERIOD OF RECORD.--April 13, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.89 ft (2.40 m) below land-surface datum, May 26, 1992; lowest water level recorded, 23.95 ft (7.30 m) below land-surface datum, Sept. 19, 20, 1994

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.63	18.54	19.31	19.75	20.44	20.66	21.16	21.85	21.84	22.54	22.73	23.62
2	17.57	18.59	19.32	19.76	20.45	20.65	21.18	21.87	21.88	22.56	22.78	23.64
3	17.56	18.62	19.35	19.77	20.47	20.66	21.21	21.91	21.93	22.58	22.82	23.68
4	17.56	18.65	19.37	19.80	20.48	20.67	21.22	21.93	21.97	22.60	22.87	23.73
5	17.61	18.68	19.37	19.81	20.47	20.69	21.24	21.95	22.01	22.63	22.91	23.78
6	17.65	18.72	19.39	19.83	20.48	20.70	21.24	21.97	22.04	22.66	22.94	---
7	17.70	18.76	19.41	19.86	20.48	20.72	21.27	22.00	22.06	22.67	22.97	---
8	17.72	18.80	19.42	19.88	20.49	20.72	21.28	22.01	22.09	22.69	22.99	---
9	17.76	18.82	19.44	19.90	20.49	20.73	21.30	22.04	22.12	22.71	23.02	---
10	17.82	18.86	19.45	19.92	20.50	20.76	21.32	22.06	22.14	22.73	23.04	---
11	17.86	18.90	19.46	19.94	20.50	20.77	21.36	21.64	22.16	22.76	23.07	---
12	17.90	18.94	19.48	19.97	20.50	20.78	21.37	21.37	22.19	22.78	23.10	23.85
13	17.95	18.97	19.49	19.99	20.51	20.78	21.40	21.31	22.22	22.80	23.12	23.86
14	18.00	19.00	19.49	20.00	20.51	20.79	21.42	21.31	22.24	22.82	23.15	23.89
15	18.04	19.02	19.48	20.02	20.52	20.81	21.45	21.31	22.28	22.86	23.18	23.91
16	18.08	19.04	19.48	20.05	20.53	20.83	21.48	21.32	22.29	22.88	23.21	23.91
17	18.10	19.08	19.48	20.07	20.52	20.84	21.50	21.34	22.31	22.91	23.23	23.91
18	18.13	19.11	19.49	20.10	20.54	20.87	21.54	21.37	22.32	22.92	23.27	23.92
19	18.18	19.12	19.51	20.12	20.55	20.88	21.56	21.38	22.34	22.57	23.30	23.93
20	18.20	19.12	19.53	20.15	20.56	20.91	21.58	21.39	22.35	22.43	23.32	23.91
21	18.23	19.16	19.55	20.18	20.57	20.93	21.60	21.42	22.36	22.39	23.35	23.30
22	18.27	19.19	19.57	20.20	20.58	20.94	21.64	21.44	22.37	22.38	23.38	23.06
23	18.29	19.20	19.58	20.22	20.59	20.96	21.66	21.48	22.40	22.39	23.40	22.97
24	18.31	19.22	19.61	20.24	20.60	20.98	21.68	21.51	22.42	22.42	23.43	22.88
25	18.33	19.25	19.62	20.27	20.61	21.00	21.70	21.54	22.44	22.45	23.45	22.77
26	18.37	19.25	19.65	20.30	20.62	21.02	21.73	21.59	22.46	22.48	23.47	22.72
27	18.40	19.25	19.67	20.33	20.63	21.05	21.75	21.63	22.48	22.52	23.50	22.70
28	18.43	19.26	19.69	20.34	20.65	21.07	21.78	21.67	22.50	22.56	23.52	22.69
29	18.46	19.28	19.70	20.36	---	21.09	21.81	21.71	22.52	22.60	23.54	22.68
30	18.49	19.30	19.72	20.39	---	21.11	21.83	21.75	22.54	22.65	23.56	22.69
31	18.52	---	19.74	20.42	---	21.13	---	21.80	---	22.69	23.59	---
MEAN	18.04	18.99	19.51	20.06	20.53	20.85	21.48	21.64	22.24	22.63	23.20	23.42

WTR YR 1994 MEAN 21.01 HIGHEST 17.56 OCT. 2, 3, 4, 1993 LOWEST 23.95 SEPT. 19, 20, 1994



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

175957066123400 Local number, HW-TW-13.

LOCATION.--Lat 17°59'57", long 66°12'34", Hydrologic Unit 21010004, 3.11 northeast of Central Aguirre Church, 5.76 mi northwest of Escuela de Guayama, and 2.03 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-13.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69 ft (0-21.0 m), cased 4 in (0.10 m), 0-69 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69 ft (21.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 203 ft (61.9 m) above mean sea level.

Measuring point: Hole on side of casing, 2.33 ft (0.71 m) above land-surface datum. Prior October 14, 1988, top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

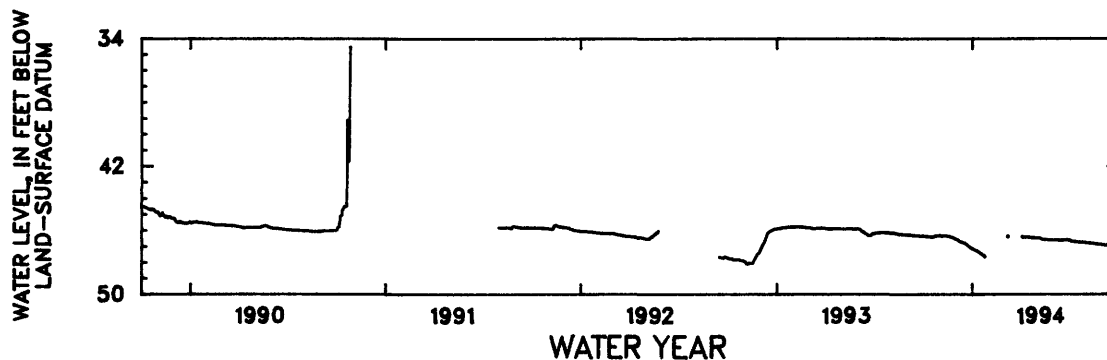
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.39 ft (10.5 m) below land-surface datum, Oct. 27, 1990; lowest water level recorded, 48.10 ft (14.7 m) below land-surface datum, Nov. 6, 7, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.34	46.30	46.52	47.14	---	---	---	46.46	46.59	46.60	46.76	46.89
2	46.35	46.30	46.53	47.15	---	---	---	46.47	46.59	46.61	46.76	46.90
3	46.35	46.30	46.55	47.16	---	---	---	46.47	46.59	46.61	46.77	46.90
4	46.35	46.32	46.57	47.19	---	---	---	46.47	46.59	46.64	46.77	46.91
5	46.36	46.33	46.58	47.20	---	---	46.39	46.47	46.60	46.66	46.78	46.92
6	46.36	46.33	46.59	47.22	---	---	46.39	46.47	46.60	46.68	46.78	46.92
7	46.36	46.33	46.63	47.23	---	---	46.39	46.48	46.60	46.68	46.78	46.92
8	46.36	46.33	46.65	47.25	---	46.37	46.40	46.48	46.60	46.68	46.79	46.92
9	46.36	46.33	46.67	47.25	---	46.37	46.40	46.49	46.60	46.68	46.79	46.93
10	46.37	46.33	46.69	47.26	---	46.37	46.40	46.49	46.60	46.68	46.80	46.93
11	46.38	46.32	46.70	47.29	---	---	46.40	46.55	46.60	46.69	46.80	46.93
12	46.39	46.32	46.71	47.31	---	---	46.40	46.56	46.61	46.69	46.81	46.96
13	46.39	46.32	46.72	47.33	---	---	46.41	46.56	46.61	46.69	46.81	46.96
14	46.39	46.33	46.73	47.35	---	---	46.41	46.56	46.62	46.70	46.81	46.96
15	46.40	46.35	46.75	47.38	---	---	46.41	46.56	46.62	46.71	46.81	46.96
16	46.40	46.34	46.76	47.40	---	---	46.41	46.56	46.60	46.71	46.82	46.96
17	46.40	46.34	46.77	47.43	---	---	46.41	46.57	46.60	46.72	46.83	46.96
18	46.40	46.35	46.78	47.45	---	---	46.42	46.57	46.60	46.73	46.84	46.96
19	46.40	46.36	46.80	47.46	---	---	46.42	46.57	46.59	46.73	46.85	46.96
20	46.40	46.37	46.83	47.49	---	---	46.43	46.57	46.59	46.73	46.85	46.96
21	46.39	46.39	46.86	47.50	---	---	46.43	46.57	46.59	46.73	46.85	46.96
22	46.36	46.40	46.89	47.53	---	---	46.43	46.57	46.59	46.73	46.86	46.96
23	46.35	46.41	46.91	47.55	---	---	46.44	46.58	46.59	46.73	46.86	46.96
24	46.34	46.42	46.95	47.58	---	---	46.44	46.58	46.59	46.73	46.87	46.96
25	46.34	46.44	46.97	47.60	---	---	46.44	46.58	46.59	46.73	46.87	46.96
26	46.33	46.45	47.00	47.63	---	---	46.44	46.58	46.58	46.73	46.87	46.96
27	46.31	46.47	47.03	---	---	---	46.45	46.58	46.58	46.74	46.88	46.97
28	46.31	46.48	47.06	---	---	---	46.45	46.58	46.58	46.74	46.88	46.97
29	46.31	46.50	47.08	---	---	---	46.46	46.58	46.58	46.74	46.88	46.97
30	46.31	46.51	47.10	---	---	---	46.46	46.59	46.60	46.75	46.89	46.97
31	46.31	---	47.13	---	---	---	---	46.59	---	46.75	46.89	---
MEAN	46.36	46.37	46.79	47.36	---	46.37	46.42	46.54	46.60	46.70	46.83	46.94

WTR YR 1994 MEAN 46.68 HIGHEST 46.30 OCT. 31, NOV. 1, 2, 3, 4, 1993 LOWEST 47.65 JAN. 27, 1994



GROUND-WATER LEVELS

461

RIO SALINAS TO RIO JACAGUAS BASINS

175946066102000 Local number, HW-TW-14.

LOCATION.--Lat 17°59'46", long 66°10'20", Hydrologic Unit 21010004, 4.42 northeast of Central Aguirre Church, 3.41 mi northwest of Escuela de Guayama, and 2.01 mi northeast of Hwy 3 km 146.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-14.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-79 ft (0-24.4 m), cased 4 in (0.10 m), 0-79 ft (0-24.1 m), screened 71-78 ft (21.6-23.8 m). Depth 79 ft (24.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 205 ft (62.5 m) above mean sea level.

Measuring point: Hole on side of casing, 3.02 ft (0.92 m) above land-surface datum. Prior October 7, 1988, top of shelter floor, 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Recording Observation well. Well dry at 73.56 ft (22.42 m).

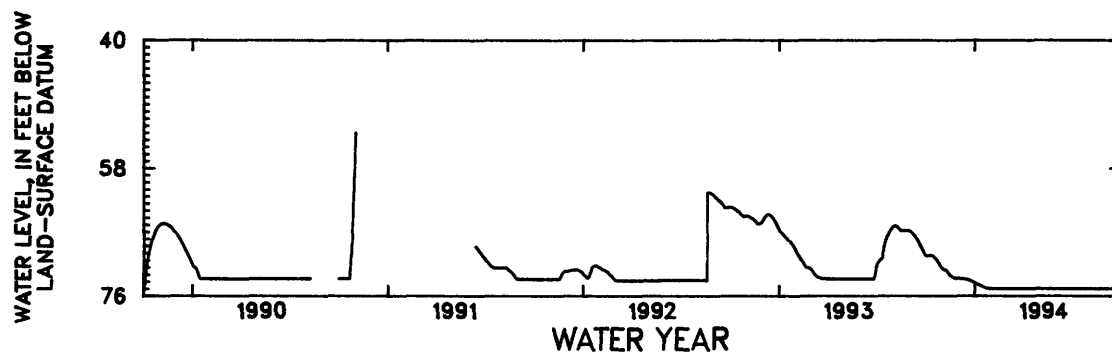
PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.1 ft (12.5 m) below land-surface datum, Dec. 17, 1987; lowest water level recorded, 75.35 ft (23.0 m) below land-surface datum, Oct. 2, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70.26	72.12	73.50	74.13	74.94	74.96	74.96	74.96	74.96	74.96	74.96	74.96
2	70.33	72.20	73.51	74.16	74.95	74.96	74.96	74.96	74.96	74.96	74.96	74.96
3	70.34	72.23	73.52	74.20	74.94	74.96	74.96	74.96	74.96	74.96	74.96	74.96
4	70.34	72.26	73.53	74.24	74.95	74.96	74.96	74.96	74.96	74.96	74.96	74.96
5	70.35	72.28	73.53	74.29	74.95	74.96	74.96	74.96	74.96	74.96	74.96	74.96
6	70.32	72.30	73.54	74.34	74.95	74.96	74.96	74.96	74.96	74.96	74.96	74.96
7	70.29	72.33	73.54	74.37	74.94	74.96	74.96	74.96	74.96	74.96	74.96	74.96
8	70.27	72.36	73.56	74.39	74.94	74.96	74.96	74.96	74.96	74.96	74.96	74.96
9	70.26	72.40	73.56	74.42	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.96
10	70.25	72.47	73.56	74.46	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.96
11	70.25	72.61	73.57	74.49	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.96
12	70.27	72.69	73.58	74.52	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.96
13	70.29	72.78	73.60	74.56	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.96
14	70.34	72.88	73.61	74.59	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
15	70.38	73.01	73.61	74.62	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
16	70.44	73.09	73.62	74.65	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
17	70.52	73.16	73.63	74.69	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
18	70.61	73.19	73.62	74.72	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
19	70.68	73.24	73.64	74.76	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
20	70.76	73.27	73.69	74.80	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
21	70.86	73.31	73.72	74.83	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
22	70.98	73.35	73.76	74.85	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
23	71.08	73.39	73.80	74.89	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
24	71.20	73.43	73.83	74.93	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
25	71.30	73.45	73.87	74.93	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
26	71.42	73.46	73.90	74.92	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
27	71.55	73.47	73.94	74.92	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
28	71.68	73.47	73.98	74.93	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97
29	71.81	73.48	74.02	74.93	---	74.96	74.96	74.96	74.96	74.96	74.96	74.97
30	71.93	73.49	74.06	74.93	---	74.96	74.96	74.96	74.96	74.96	74.96	74.97
31	72.03	---	74.10	74.93	---	74.96	---	74.96	---	74.96	74.96	---
MEAN	70.75	72.91	73.69	74.63	74.96	74.96	74.96	74.96	74.96	74.96	74.96	74.97

WTR YR 1994 MEAN 74.30 HIGHEST 70.23 OCT. 1, 1993 LOWEST 74.97 SEPT. 14 TO 30, 1994



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

180206066135500. Local number, RM # 5.

LOCATION.--Lat 18°02'06", long 66°13'55", Hydrologic Unit 21010004, 6.98 mi southwest of Cayey plaza, 0.63 mi east of Hwy 1 km 82.3 on Rabo del Buey, and 1.75 mi southeast of Capilla de Santa Marta. Owner: U.S. Geological Survey, WRD, Name: RM # 5.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34 ft (0-10.4 m), screened 24-34 ft (7.32-10.7 m). Depth 34 ft (10.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 276.35 ft (84.2 m) above mean sea level.

Measuring point: Top of shelter floor, 3.28 ft (1.0 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed during February 2, 7, 1990.

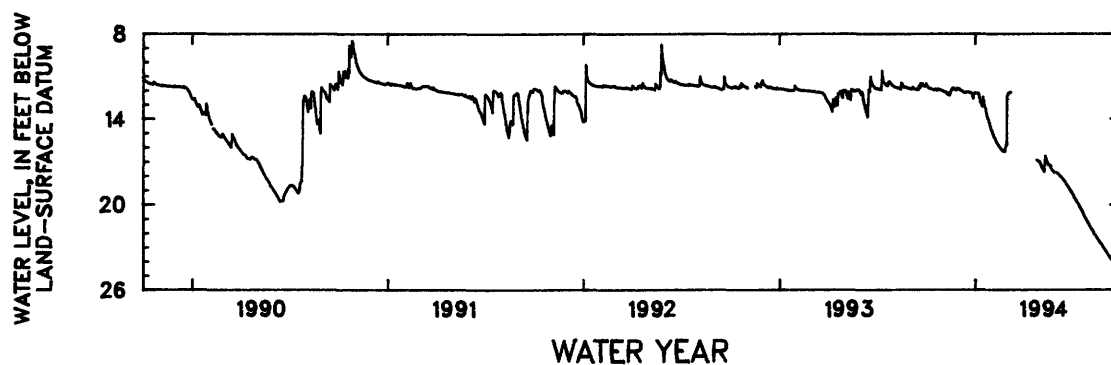
PERIOD OF RECORD.--March 9, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.48 ft (2.28 m) below land-surface datum, May 26, 1992; lowest water level recorded, 24.24 ft (7.39 m) below land-surface datum, Sept. 20, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.49	12.03	11.87	12.18	14.92	12.53	---	17.02	17.76	19.22	21.41	23.25
2	11.63	12.04	11.88	12.18	15.03	12.33	---	17.11	17.77	19.28	21.48	23.31
3	11.69	12.04	11.93	12.17	15.12	12.22	---	17.20	17.79	19.33	21.53	23.38
4	11.75	12.06	11.96	12.17	15.22	12.18	---	17.27	17.81	19.46	21.60	23.44
5	11.78	12.08	11.99	12.17	15.29	12.14	---	17.33	17.84	19.54	21.67	23.50
6	11.82	12.10	11.99	12.18	15.38	12.11	---	17.40	17.88	19.58	21.73	23.55
7	11.84	12.11	12.02	12.19	15.45	12.11	---	17.47	17.93	19.64	21.79	23.62
8	11.84	12.15	12.06	12.44	15.54	12.10	---	17.55	17.97	19.71	21.85	23.67
9	11.86	12.21	12.07	12.67	15.62	---	---	17.62	18.01	19.77	21.91	23.72
10	11.88	12.26	12.11	12.82	15.67	---	---	17.69	18.05	19.83	21.96	23.77
11	11.89	12.31	12.12	12.82	15.74	---	---	16.56	18.08	19.90	22.09	23.84
12	11.90	12.17	12.14	12.88	15.82	---	---	16.65	18.14	19.96	22.11	23.86
13	11.91	12.18	12.15	13.08	15.86	---	---	16.81	18.18	20.02	22.15	23.89
14	11.92	12.32	12.12	13.13	15.91	---	---	16.93	18.22	20.10	22.20	23.94
15	11.94	12.16	12.09	12.43	15.98	---	---	17.02	18.26	20.16	22.27	24.01
16	11.96	12.04	12.09	12.50	16.02	---	---	17.11	18.34	20.23	22.33	24.06
17	11.92	11.97	12.09	12.78	16.06	---	---	17.20	18.37	20.30	22.38	24.11
18	11.90	11.94	12.10	13.05	16.11	---	---	17.21	18.42	20.37	22.46	24.15
19	11.91	11.80	12.10	13.17	16.14	---	---	17.21	18.53	20.45	22.52	24.21
20	11.94	11.81	12.11	13.28	16.19	---	---	17.23	18.58	20.52	22.58	23.01
21	11.96	11.83	12.11	13.49	16.24	---	---	17.28	18.62	20.59	22.64	15.95
22	11.99	11.88	12.14	13.67	16.24	---	---	17.36	18.69	20.68	22.68	15.02
23	11.87	11.92	12.14	13.83	16.26	---	---	17.43	18.74	20.79	22.71	14.51
24	11.89	11.93	12.14	13.97	16.28	---	---	17.51	18.81	20.88	22.76	13.74
25	11.91	11.95	12.18	14.04	16.28	---	---	17.59	18.86	20.92	22.81	13.20
26	11.94	11.95	12.23	14.17	15.97	---	16.91	17.64	18.92	20.99	22.88	12.91
27	11.94	11.84	12.42	14.29	15.83	---	16.94	17.68	18.99	21.06	22.94	12.73
28	11.95	11.84	12.56	14.46	15.78	---	16.96	17.68	19.04	21.13	23.02	12.62
29	11.97	11.88	12.22	14.58	---	---	16.98	17.76	19.10	21.20	23.10	12.55
30	11.98	11.91	12.18	14.70	---	---	16.98	17.76	19.15	21.26	23.14	12.49
31	12.01	---	12.17	14.82	---	---	---	17.76	---	21.34	23.20	---
MEAN	11.88	12.02	12.11	13.17	15.78	12.22	16.95	17.32	18.36	20.26	22.32	20.33

WTR YR 1994 MEAN 16.26 HIGHEST 11.38 OCT. 1, 1993 LOWEST 24.24 SEPT. 20, 1994



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

180104066152300. Local number, RM # 10.

LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8.00 mi southeast of Coamo plaza, 1.07 mi northeast of Escuela de Coco, and 0.70 mi southwest of Escuela Sabana Llana. Owner: U.S. Geological Survey, WRD, Name: RM # 10.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37 ft (11.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is 164.13 ft (50.0 m) above mean sea level, from leveling survey.

Measuring point: Top of shelter floor, 3.62 ft (1.10 m) above land-surface datum.

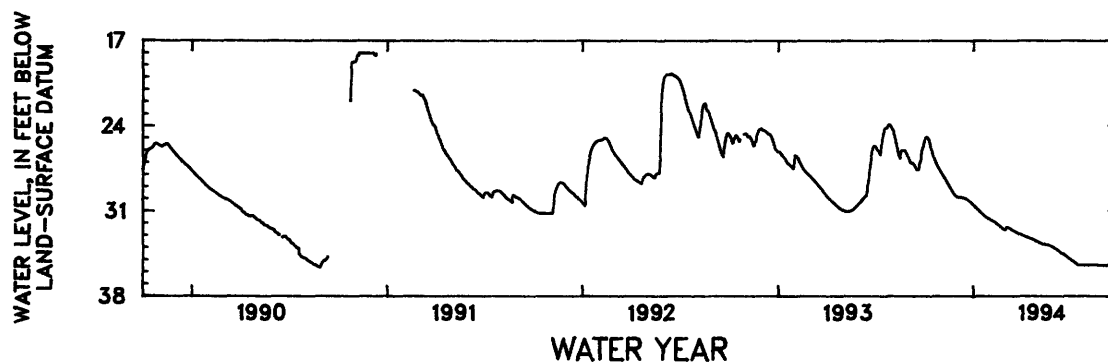
REMARKS.--Recording observation well. Pumping test performed on February 8, 1990. Well dry at 35.77 ft (10.9 m). PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.0 ft (5.49 m) below land-surface datum, Nov. 9, 1990; lowest water level recorded, 35.77 ft (10.9 m) below land-surface datum, Sept. 14 to 30, 1994

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25.29	27.82	29.85	30.54	31.71	32.59	32.97	33.53	34.04	34.97	35.44	35.46
2	25.10	27.90	29.86	30.59	31.74	32.51	32.99	33.54	34.07	35.01	35.44	35.46
3	24.99	27.97	29.87	30.63	31.76	32.40	33.01	33.56	34.09	35.05	35.44	35.46
4	24.93	28.05	29.88	30.69	31.78	32.36	33.03	33.60	34.12	35.08	35.44	35.46
5	24.92	28.12	29.88	30.72	31.81	32.36	33.05	33.62	34.15	35.11	35.44	35.46
6	24.92	28.18	29.88	30.77	31.84	32.36	33.07	33.64	34.18	35.11	35.44	35.46
7	24.96	28.25	29.88	30.82	31.86	32.38	33.09	33.66	34.20	35.14	35.44	35.46
8	25.02	28.33	29.88	30.86	31.88	32.40	33.10	33.68	34.24	35.16	35.44	35.46
9	25.11	28.40	29.89	30.90	31.90	32.41	33.11	33.71	34.27	35.21	35.44	35.46
10	25.24	28.48	29.90	30.94	31.93	32.43	33.13	33.74	34.30	35.25	35.44	35.46
11	25.41	28.55	29.91	30.98	31.96	32.46	33.15	33.75	34.33	35.27	35.44	35.46
12	25.58	28.63	29.92	31.03	32.00	32.49	33.17	33.74	34.38	35.32	35.45	35.46
13	25.76	28.72	29.93	31.06	32.04	32.52	33.18	33.74	34.41	35.35	35.45	35.46
14	25.92	28.79	29.93	31.10	32.07	32.55	33.21	33.74	34.44	35.38	35.45	---
15	26.06	28.86	29.95	31.14	32.10	32.58	33.23	33.75	34.48	35.43	35.45	35.77
16	26.22	28.95	29.96	31.19	32.15	32.60	33.24	33.77	34.48	35.44	35.45	35.77
17	26.38	29.03	29.98	31.22	32.18	32.63	33.26	33.78	34.51	35.44	35.45	35.77
18	26.54	29.10	30.00	31.27	32.21	32.65	33.28	33.78	34.54	35.44	35.45	35.77
19	26.67	29.17	30.03	31.30	32.25	32.68	33.30	33.78	34.57	35.44	35.45	35.77
20	26.79	29.24	30.06	31.35	32.28	32.70	33.30	33.78	34.60	35.45	35.45	35.77
21	26.90	29.32	30.09	31.39	32.32	32.73	33.32	33.79	34.64	35.45	35.45	35.77
22	27.00	29.38	30.13	31.43	32.35	32.75	33.34	33.82	34.67	35.45	35.47	35.77
23	27.10	29.46	30.16	31.48	32.38	32.78	33.36	33.84	34.71	35.44	35.47	35.77
24	27.20	29.53	30.20	31.52	32.42	32.80	33.38	33.85	34.74	35.44	35.47	35.77
25	27.28	29.59	30.24	31.53	32.46	32.83	33.40	33.87	34.77	35.44	35.47	35.77
26	27.36	29.64	30.28	31.56	32.50	32.85	33.43	33.89	34.81	35.44	35.47	35.77
27	27.43	29.69	30.33	31.59	32.53	32.86	33.44	33.92	34.85	35.44	35.47	35.77
28	27.51	29.75	30.37	31.61	32.57	32.89	33.46	33.94	34.88	35.44	35.46	35.77
29	27.60	29.78	30.41	31.64	---	32.91	33.49	33.97	34.91	35.44	35.46	35.77
30	27.66	29.81	30.46	31.66	---	32.93	33.50	33.99	34.94	35.44	35.46	35.77
31	27.74	---	30.50	31.68	---	32.95	---	34.01	---	35.44	35.46	---
MEAN	26.21	28.88	30.05	31.17	32.11	32.62	33.23	33.77	34.48	35.32	35.45	35.63

WTR YR 1994 MEAN 32.40 HIGHEST 24.91 OCT. 5, 6, 1993 LOWEST 35.77 SEPT. 14 TO 30, 1994



GROUND-WATER LEVELS

RIO INABON TO RIO LOCO BASINS

180133066503300. Local number, 132.

LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.90 mi southeast of Yauco plaza, 3.46 mi east of Guayanilla plaza, and 1.32 mi north of Escuela Segunda Unidad Barinas. Owner: Pittsburg Plate Glass 4, Name: Yauco 2.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20 ft (0-6.1 m), 12 in (0.30 m) perforated pipe 20-84 ft (6.1-25.61 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.61-57.93 m). Depth 190 ft (57.93 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.87 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.35 ft (0.72 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--July 1972 to current year.

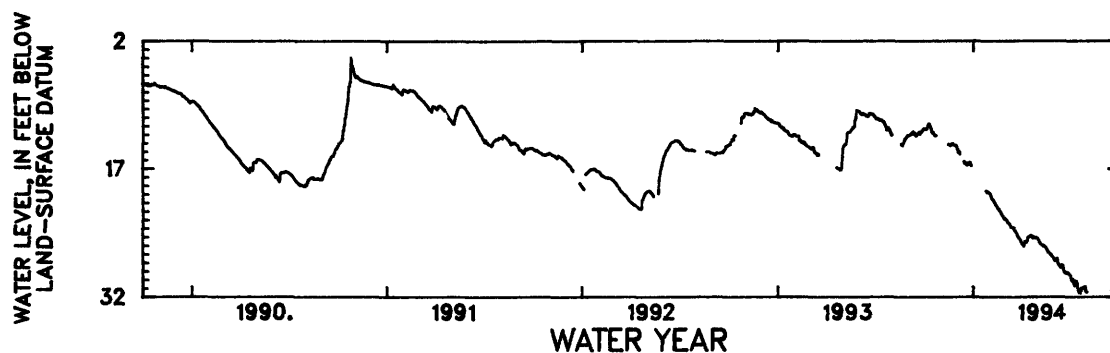
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (0.04 m) below land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m) below land-surface datum, June 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.33	---	14.37	---	19.88	22.78	25.56	25.09	27.60	29.47	31.44	---
2	12.33	---	14.59	---	20.01	22.92	25.73	25.21	27.69	29.57	---	---
3	12.33	---	14.72	---	20.20	22.94	25.78	25.29	27.78	29.92	---	---
4	12.29	---	15.05	---	20.44	23.00	25.82	25.42	27.66	30.07	---	---
5	12.31	---	15.04	---	20.55	23.14	25.92	25.61	27.58	30.16	---	---
6	12.29	---	14.98	---	20.61	23.23	26.06	25.65	27.50	29.85	---	---
7	12.12	---	15.28	---	20.63	23.30	25.70	25.79	27.47	30.07	---	---
8	11.87	---	---	---	20.74	23.35	25.45	25.82	27.99	30.46	---	---
9	11.73	---	---	---	20.91	23.44	25.57	25.90	28.11	30.69	---	---
10	11.71	---	---	---	21.01	23.57	25.60	25.92	28.25	30.12	---	---
11	11.84	---	---	---	21.12	23.65	25.60	25.92	28.34	30.11	---	---
12	12.04	---	---	---	21.26	23.80	25.43	25.92	28.41	30.11	---	---
13	12.19	---	---	---	21.37	23.85	25.03	25.97	28.56	30.11	---	---
14	12.35	---	---	---	21.43	23.87	24.96	26.04	28.34	30.51	---	---
15	12.70	---	16.18	---	21.57	23.87	24.96	26.09	28.26	30.98	---	---
16	12.79	14.13	16.40	---	21.66	23.91	24.94	26.16	28.26	31.24	---	31.25
17	12.66	14.18	16.44	---	21.66	23.93	24.88	26.24	28.26	31.35	---	31.25
18	12.70	14.19	16.36	---	21.71	23.95	24.77	26.37	28.57	31.49	---	31.25
19	12.93	14.26	16.30	---	21.90	24.10	24.77	26.48	28.91	31.49	---	31.26
20	13.05	14.30	16.57	---	22.00	24.24	24.80	26.64	29.09	31.53	---	31.15
21	13.09	14.14	16.57	---	22.10	24.26	24.86	26.70	29.18	30.97	---	30.89
22	13.09	14.02	16.38	---	22.26	24.42	25.03	26.73	29.04	30.92	---	30.85
23	13.08	14.03	16.32	---	22.32	24.53	25.08	26.81	29.15	30.92	---	30.72
24	---	14.10	16.42	---	22.44	24.64	25.02	26.90	29.07	30.92	---	30.46
25	---	14.15	16.30	19.60	22.58	24.81	24.95	27.04	29.23	30.92	---	30.11
26	---	14.16	16.25	19.61	22.70	24.95	25.03	26.98	29.18	30.81	---	29.92
27	---	14.22	16.38	19.78	22.83	25.01	25.09	27.01	29.11	30.80	---	29.74
28	---	14.25	16.60	19.74	22.90	25.11	25.04	27.18	29.26	30.76	---	29.51
29	---	14.25	16.67	19.69	---	25.22	25.01	27.29	29.25	30.76	---	29.38
30	---	14.25	---	19.82	---	25.36	25.06	27.36	29.28	31.34	---	29.13
31	---	---	---	19.84	---	25.42	---	27.43	---	31.37	---	---
MEAN	12.43	14.18	15.92	19.73	21.46	24.02	25.25	26.29	28.48	30.64	31.44	30.46

WTR YR 1994 MEAN 23.47 HIGHEST 11.71 OCT. 10, 11, 1993 LOWEST 31.53 JULY 20, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

465

RIO INABON TO RIO LOCO BASINS

175950066354200. Local number, 141.

LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.60 mi northeast of Muelle de Ponce.

Owner: P.R. Aqueduct and Sewer Authority, Name: Restaurada 8A.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2-20 ft (0.6-6.1 m), perforated 20-130 ft (6.10-39.6 m), 10 in (0.25 m) 128-165 ft (39.0-50.3 m), perforated. Depth 165 ft (50.3 m).

INSTRUMENTATION.--Automatic digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 24 ft (7.30 m) above mean sea level, from topographic map.

Measuring point: Bottom edge of hole on side of casing 1.90 ft (0.58 m) above land-surface datum, 26.2 ft (7.67 m), above mean sea level..

REMARKS.--Recording observation well. Well dry at 26.56 ft (8.09 m).

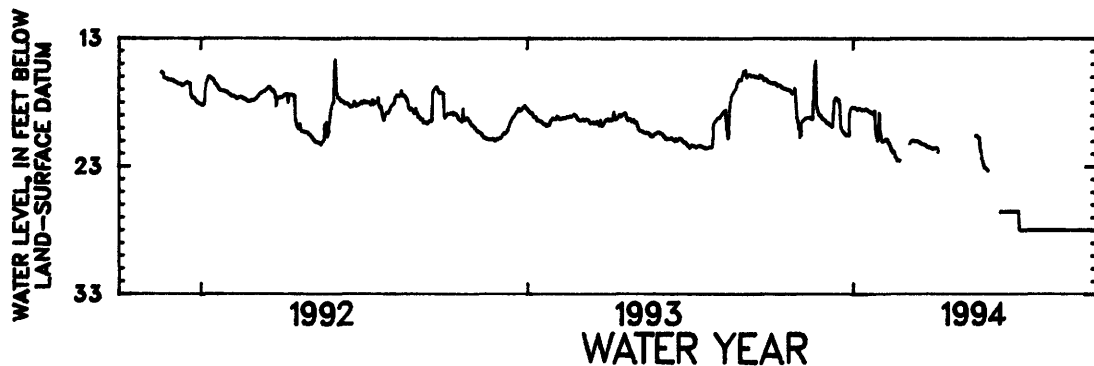
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m) below land-surface datum, Oct. 9, 1985; lowest water level recorded, 28.6 ft (8.71 m) below land-surface datum, July 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.48	19.82	19.39	18.41	20.77	---	21.60	---	23.34	26.53	27.99	27.99
2	16.49	20.75	19.52	18.38	21.04	---	21.57	---	---	26.52	27.99	27.99
3	16.53	20.58	19.59	18.39	21.03	---	21.55	---	---	26.52	27.99	27.99
4	16.50	19.59	19.63	18.45	20.98	---	21.54	---	---	26.52	27.99	27.99
5	16.50	19.45	19.62	18.50	20.92	21.21	21.60	---	---	26.52	27.99	27.99
6	16.51	19.39	19.72	18.55	20.85	21.04	21.87	---	---	27.99	27.99	27.99
7	16.64	19.33	19.76	18.46	20.93	21.01	---	---	---	27.99	27.99	27.99
8	16.71	19.24	19.83	18.46	20.88	20.95	---	---	---	27.99	27.99	27.99
9	16.70	19.25	19.88	18.48	21.09	20.96	---	---	---	27.99	27.99	27.99
10	16.66	19.21	18.87	18.53	21.21	20.99	---	---	---	27.99	27.99	27.99
11	16.68	19.18	17.77	18.59	21.39	20.99	---	---	---	27.99	27.99	27.99
12	16.76	19.18	17.66	18.56	21.60	20.99	---	---	---	27.99	27.99	27.99
13	16.83	19.18	17.62	18.54	21.75	21.01	---	---	---	27.99	27.99	27.99
14	16.88	19.14	17.78	18.55	21.90	21.02	---	---	---	27.99	27.99	27.99
15	16.90	19.27	17.84	18.51	21.81	21.05	---	---	26.56	27.99	27.99	27.99
16	16.94	19.16	17.79	18.51	21.95	21.11	---	---	26.55	27.99	27.99	27.99
17	16.93	19.31	18.16	18.57	22.25	21.16	---	---	26.55	27.99	27.99	27.99
18	16.98	15.53	19.90	18.64	22.36	21.21	---	20.57	26.55	27.99	27.99	27.99
19	17.01	14.89	20.05	18.69	22.52	21.24	---	20.57	26.55	27.99	27.99	27.99
20	17.01	14.77	20.23	18.70	22.52	21.27	---	20.66	26.54	27.99	27.99	27.99
21	17.03	18.16	20.33	18.78	22.54	21.29	---	20.76	26.54	27.99	27.99	27.99
22	17.04	18.54	20.40	18.84	22.55	21.29	---	20.75	26.54	27.99	27.99	27.99
23	17.14	18.73	20.53	18.83	---	21.35	---	21.66	26.54	27.99	27.99	27.99
24	17.25	18.96	20.57	18.79	---	21.43	---	21.87	26.54	27.99	27.99	27.99
25	17.31	19.00	20.50	18.66	---	21.48	---	22.45	26.54	27.99	27.99	27.99
26	17.27	19.02	20.54	20.54	---	21.49	---	22.61	26.53	27.99	27.99	27.99
27	16.91	19.17	20.57	20.69	---	21.48	---	22.90	26.53	27.99	27.99	27.99
28	17.16	19.29	18.85	20.95	---	21.50	---	23.13	26.53	27.99	27.99	27.99
29	18.31	19.26	18.51	20.84	---	21.56	---	23.09	26.53	27.99	27.99	27.99
30	19.30	19.36	18.43	18.80	---	21.58	---	23.16	26.53	27.99	27.99	27.99
31	19.46	---	18.37	20.44	---	21.61	---	23.24	---	27.99	27.99	---
MEAN	17.06	18.86	19.30	18.92	21.58	21.23	21.62	21.96	26.35	27.75	27.99	27.99

WTR YR 1994 MEAN 22.53 HIGHEST 14.76 NOV. 20, 1993 LOWEST 27.99 JULY 6 TO SEPT. 30, 1994



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'32", long 67°03'38", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.30 mi northwest of the intersection of Hwy 116 with Hwy 305.

Owner: Pedro P. Vivoni, Name: Vivoni, Hacienda Amistad.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.30 m). Depth 200 ft (60.98 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 52.5 ft (16.0 m) above mean sea level, from topographic map.

Measuring point: Hole side of casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well.

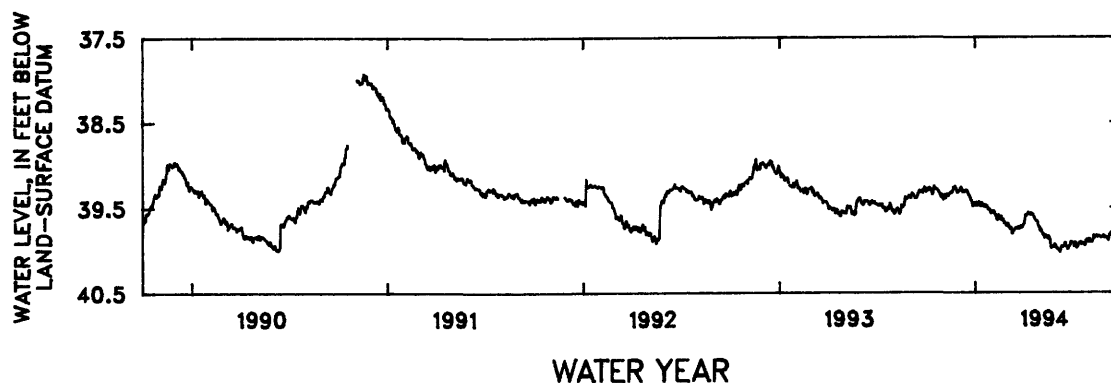
PERIOD OF RECORD.--December 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.36 ft (11.39 m) below land-surface datum, Nov. 20, 1985; lowest water level recorded, 40.0 ft (12.2 m) below land-surface datum, June 9, 10, 11, 1990, June 8, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39.32	39.38	39.31	39.48	39.54	39.72	39.70	39.74	39.98	39.92	39.87	39.85
2	39.30	39.41	39.30	39.46	39.54	39.70	39.69	39.78	39.98	39.92	39.88	39.86
3	39.28	39.39	39.29	39.44	39.56	39.69	39.67	39.77	39.99	39.93	39.91	39.86
4	39.30	39.37	39.28	39.47	39.57	39.71	39.61	39.76	39.99	39.96	39.91	39.87
5	39.30	39.35	39.26	39.48	39.54	39.74	39.59	39.79	40.00	39.96	39.91	39.86
6	39.29	39.36	39.28	39.46	39.56	39.74	39.60	39.80	40.01	39.91	39.91	39.89
7	39.27	39.39	39.31	39.46	39.59	39.76	39.59	39.82	40.01	39.92	39.91	39.85
8	39.27	39.36	39.32	39.43	39.60	39.74	39.58	39.83	40.03	39.96	39.88	39.82
9	39.29	39.35	39.31	39.46	39.59	39.74	39.57	39.82	40.00	39.98	39.85	39.83
10	39.29	39.34	39.31	39.48	39.64	39.78	39.56	39.86	39.98	39.96	39.83	39.81
11	39.31	39.35	39.32	39.49	39.65	39.81	39.57	39.86	39.96	39.96	39.84	39.80
12	39.33	39.36	39.32	39.47	39.63	39.80	39.58	39.84	39.97	39.95	39.86	39.81
13	39.35	39.34	39.30	39.44	39.62	39.77	39.59	39.83	39.97	39.93	39.84	39.81
14	39.33	39.34	39.30	39.46	39.59	39.77	39.58	39.85	39.96	39.92	39.84	39.82
15	39.28	---	39.30	39.47	39.61	39.77	39.57	39.86	39.96	39.91	39.83	39.82
16	39.25	39.32	39.30	39.49	39.64	39.75	39.59	39.86	39.95	39.91	39.84	39.84
17	39.28	39.33	39.31	39.48	39.61	39.75	39.58	39.87	39.92	39.91	39.85	39.85
18	39.29	39.33	39.34	39.47	39.61	39.75	39.58	39.84	39.92	39.94	39.84	39.83
19	39.28	39.32	39.35	39.48	39.61	39.74	39.60	39.86	39.96	39.93	39.84	39.80
20	39.28	39.30	39.36	39.50	39.65	39.75	39.61	39.88	39.97	39.93	39.84	39.72
21	39.28	39.26	39.37	39.47	39.64	39.75	39.62	39.91	39.97	39.92	39.84	39.70
22	39.29	39.28	39.38	39.48	39.64	39.73	39.64	39.97	40.00	39.93	39.85	39.65
23	39.30	39.28	39.41	39.49	39.66	39.73	39.65	39.98	39.99	39.94	39.86	39.61
24	39.31	39.25	39.42	39.51	39.69	39.75	39.66	39.96	39.96	39.95	39.85	39.62
25	39.32	39.27	39.42	39.53	39.69	39.75	39.66	39.97	39.96	39.94	39.85	39.61
26	39.33	39.28	39.46	39.52	39.68	39.73	39.66	39.97	39.96	39.89	39.85	39.62
27	39.35	39.31	39.49	39.52	39.70	39.72	39.67	39.97	39.94	39.89	39.84	39.64
28	39.37	39.33	39.48	39.53	39.72	39.73	39.70	39.95	39.91	39.88	39.83	39.60
29	39.38	39.31	39.44	39.56	---	39.74	39.73	39.94	39.91	39.91	39.85	39.56
30	39.37	39.32	39.46	39.56	---	39.73	39.73	39.94	39.91	39.91	39.86	39.55
31	39.35	---	39.48	39.57	---	39.71	---	39.95	---	39.90	39.85	---
MEAN	39.31	39.33	39.35	39.49	39.62	39.74	39.62	39.87	39.97	39.93	39.86	39.76

WTR YR 1994 MEAN 39.66 HIGHEST 39.20 OCT. 15, 1993 LOWEST 40.03 JUNE 8, 1994



GROUND-WATER LEVELS

467

RIO GUANAJIBO BASIN

180627067080600. Local number, CR-TW-1.

LOCATION.--Lat 18°06'27", long 67°08'06", Hydrologic Unit 21010003, 1.48 mi north of Cabo Rojo plaza, 1.24 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.78 mi southwest of Escuela Sabana Alta.
 Owner: U.S. Geological Survey, WRD, Name: CR-TW-1.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 5-15 ft (1.52-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.6 ft (8.72 m) above mean sea level, from topographic map.
 Measuring point: Hole on shelter floor, 8.83 ft (2.79 m) above land-surface datum. Prior February 25, 1993, hole on shelter floor 5.83 ft (1.78 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 3, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to January 1994, discontinued.

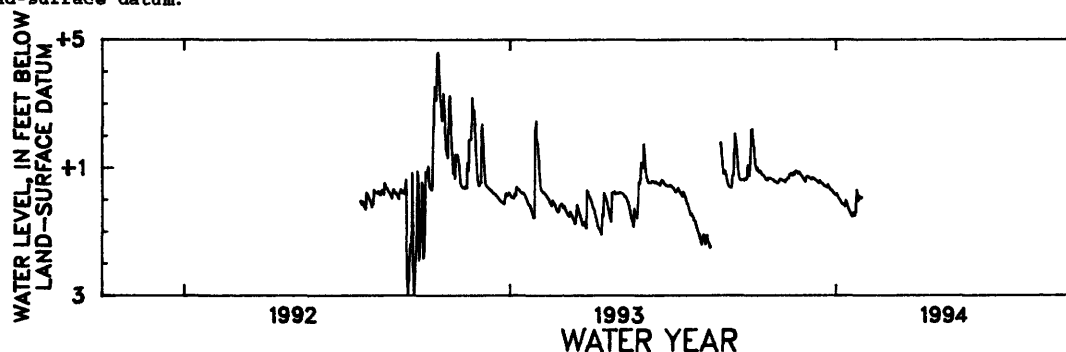
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.75 ft (+1.45 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 1.63 ft (0.50 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
 INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+1.62	+.63	+.72	+.14	---	---	---	---	---	---	---	---
2	+1.26	+.60	+.70	+.19	---	---	---	---	---	---	---	---
3	+1.04	+.59	+.67	+.11	---	---	---	---	---	---	---	---
4	+.93	+.58	+.65	+.04	---	---	---	---	---	---	---	---
5	+1.00	+.55	+.63	.00	---	---	---	---	---	---	---	---
6	+.89	+.63	+.69	.05	---	---	---	---	---	---	---	---
7	+.85	+.62	+.67	.11	---	---	---	---	---	---	---	---
8	+.91	+.70	+.65	.15	---	---	---	---	---	---	---	---
9	+.84	+.67	+.62	.14	---	---	---	---	---	---	---	---
10	+.79	+.80	+.60	.16	---	---	---	---	---	---	---	---
11	+.77	+.76	+.57	.22	---	---	---	---	---	---	---	---
12	+.75	+.83	+.55	.01	---	---	---	---	---	---	---	---
13	+.71	+.81	+.52	.12	---	---	---	---	---	---	---	---
14	+.66	+.76	+.60	.22	---	---	---	---	---	---	---	---
15	+.62	+.85	+.55	.30	---	---	---	---	---	---	---	---
16	+.60	+.80	+.52	.36	---	---	---	---	---	---	---	---
17	+.68	+.91	+.50	.43	---	---	---	---	---	---	---	---
18	+.66	+.89	+.47	.48	---	---	---	---	---	---	---	---
19	+.67	+.85	+.43	.54	---	---	---	---	---	---	---	---
20	+.66	+.81	+.42	.43	---	---	---	---	---	---	---	---
21	+.65	+.87	+.41	.41	---	---	---	---	---	---	---	---
22	+.63	+.81	+.38	.50	---	---	---	---	---	---	---	---
23	+.61	+.77	+.47	.40	---	---	---	---	---	---	---	---
24	+.57	+.73	+.40	+.32	---	---	---	---	---	---	---	---
25	+.57	+.68	+.35	+.24	---	---	---	---	---	---	---	---
26	+.54	+.64	+.31	.06	---	---	---	---	---	---	---	---
27	+.52	+.60	+.31	+.13	---	---	---	---	---	---	---	---
28	+.53	+.56	+.27	+.05	---	---	---	---	---	---	---	---
29	+.58	+.72	+.22	+.05	---	---	---	---	---	---	---	---
30	+.65	+.73	+.19	+.07	---	---	---	---	---	---	---	---
31	+.64	---	+.16	---	---	---	---	---	---	---	---	---
MEAN	+.75	+.73	+.49	.12	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN +.46 HIGHEST +1.76 OCT. 1, 1993 LOWEST .54 JAN. 19, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180628067075800. Local number, CR-TW-2A.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-113 ft (0-34.4 m), screened 105-113 ft (32.0-34.4 m). Depth 113 ft (34.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.85 ft (8.79 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 6, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to January 1994, discontinued..

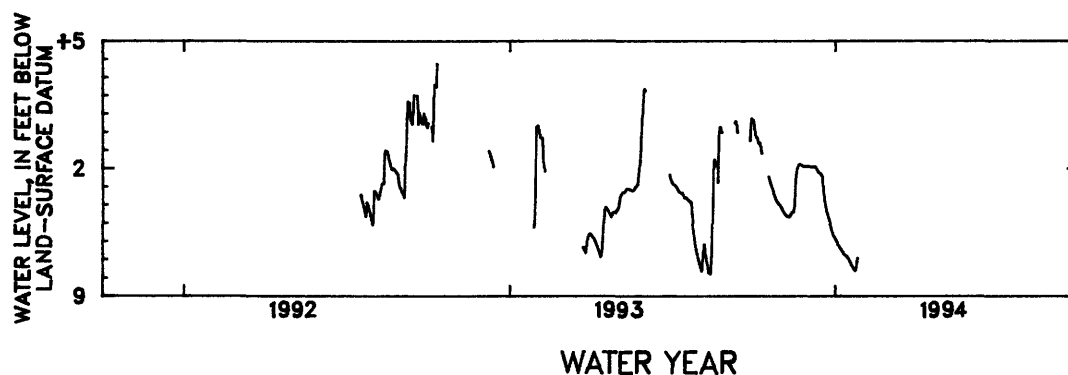
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.00 ft (+1.22 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 7.84 ft (2.39 m) below land-surface datum, Aug. 12, 13, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+66	4.14	1.88	5.86	---	---	---	---	---	---	---	---
2	+13	4.23	1.88	5.95	---	---	---	---	---	---	---	---
3	.18	4.33	1.89	6.05	---	---	---	---	---	---	---	---
4	.28	4.43	1.91	6.18	---	---	---	---	---	---	---	---
5	.31	4.51	1.91	6.24	---	---	---	---	---	---	---	---
6	.56	4.54	1.91	6.34	---	---	---	---	---	---	---	---
7	.64	4.61	1.91	6.41	---	---	---	---	---	---	---	---
8	.58	4.63	1.91	6.47	---	---	---	---	---	---	---	---
9	.85	4.65	1.88	6.55	---	---	---	---	---	---	---	---
10	1.18	4.66	1.96	6.62	---	---	---	---	---	---	---	---
11	---	4.59	2.03	6.72	---	---	---	---	---	---	---	---
12	---	4.50	2.13	6.76	---	---	---	---	---	---	---	---
13	---	4.41	2.22	6.80	---	---	---	---	---	---	---	---
14	---	4.38	2.25	6.82	---	---	---	---	---	---	---	---
15	---	4.36	2.28	6.91	---	---	---	---	---	---	---	---
16	---	4.07	2.34	6.99	---	---	---	---	---	---	---	---
17	---	2.93	2.44	7.10	---	---	---	---	---	---	---	---
18	2.47	2.33	2.96	7.20	---	---	---	---	---	---	---	---
19	2.67	2.00	3.48	7.31	---	---	---	---	---	---	---	---
20	2.83	1.88	3.85	7.39	---	---	---	---	---	---	---	---
21	2.97	1.77	4.13	7.50	---	---	---	---	---	---	---	---
22	3.10	1.77	4.40	7.58	---	---	---	---	---	---	---	---
23	3.25	1.77	4.53	7.61	---	---	---	---	---	---	---	---
24	3.44	1.80	4.71	7.47	---	---	---	---	---	---	---	---
25	3.55	1.86	4.86	7.10	---	---	---	---	---	---	---	---
26	3.70	1.88	5.05	6.93	---	---	---	---	---	---	---	---
27	3.81	1.88	5.22	---	---	---	---	---	---	---	---	---
28	3.89	1.88	5.38	---	---	---	---	---	---	---	---	---
29	3.96	1.88	5.55	---	---	---	---	---	---	---	---	---
30	3.99	1.88	5.70	---	---	---	---	---	---	---	---	---
31	4.05	---	5.76	---	---	---	---	---	---	---	---	---
MEAN	2.14	3.28	3.24	6.80	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 3.85 HIGHEST +.66 OCT. 1, 1993 LOWEST 7.62 JAN. 23, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

469

RIO GUANAJIBO BASIN

180628067075801. Local number, CR-TW-2B.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2B.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 10-15 ft (3.05-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.87 ft (8.80 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 10, 1992. Automatic digital recorder installed on June 3, 1992.

PERIOD OF RECORD.--June 1992 to January 1994, discontinued.

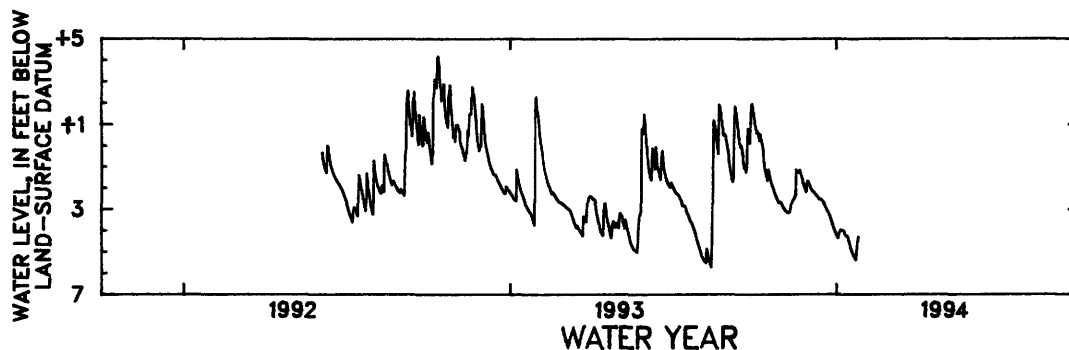
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.34 ft (+1.32 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 5.72 ft (1.74 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+1.36	2.77	1.77	4.19	---	---	---	---	---	---	---	---
2	+1.00	2.86	1.89	4.27	---	---	---	---	---	---	---	---
3	+0.75	2.94	2.01	4.37	---	---	---	---	---	---	---	---
4	+0.58	3.00	2.07	4.17	---	---	---	---	---	---	---	---
5	+0.64	3.07	2.15	4.04	---	---	---	---	---	---	---	---
6	+0.43	3.10	2.17	3.99	---	---	---	---	---	---	---	---
7	+0.23	3.15	2.24	3.98	---	---	---	---	---	---	---	---
8	+0.54	3.17	2.28	3.99	---	---	---	---	---	---	---	---
9	+0.24	3.15	2.34	4.01	---	---	---	---	---	---	---	---
10	+0.05	3.11	2.38	4.04	---	---	---	---	---	---	---	---
11	.21	2.90	2.42	4.21	---	---	---	---	---	---	---	---
12	.82	2.71	2.49	4.25	---	---	---	---	---	---	---	---
13	1.12	2.57	2.54	4.25	---	---	---	---	---	---	---	---
14	1.33	2.53	2.53	4.33	---	---	---	---	---	---	---	---
15	1.49	2.44	2.54	4.50	---	---	---	---	---	---	---	---
16	1.65	2.32	2.60	4.64	---	---	---	---	---	---	---	---
17	1.10	1.11	2.64	4.83	---	---	---	---	---	---	---	---
18	1.35	1.19	2.71	4.95	---	---	---	---	---	---	---	---
19	1.59	1.24	2.79	5.07	---	---	---	---	---	---	---	---
20	1.76	1.27	2.89	5.17	---	---	---	---	---	---	---	---
21	1.91	1.15	2.97	5.24	---	---	---	---	---	---	---	---
22	2.02	1.30	3.07	5.32	---	---	---	---	---	---	---	---
23	2.14	1.45	3.14	5.39	---	---	---	---	---	---	---	---
24	2.28	1.60	3.24	4.86	---	---	---	---	---	---	---	---
25	2.38	1.78	3.32	4.47	---	---	---	---	---	---	---	---
26	2.49	1.92	3.46	4.31	---	---	---	---	---	---	---	---
27	2.60	2.05	3.60	---	---	---	---	---	---	---	---	---
28	2.68	2.18	3.74	---	---	---	---	---	---	---	---	---
29	2.70	1.80	3.86	---	---	---	---	---	---	---	---	---
30	2.66	1.67	3.97	---	---	---	---	---	---	---	---	---
31	2.71	---	4.08	---	---	---	---	---	---	---	---	---
MEAN	1.07	2.25	2.77	4.49	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 2.57 HIGHEST +1.49 LOWEST 5.39 JAN. 23, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180628067075802. Local number, CR-TW-2C.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2C.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-65 ft (0-19.8 m), screened 60-65 ft (18.3-19.8 m). Depth 65 ft (19.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.9 ft (8.81 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.06 ft (1.85 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 7, 1992. Automatic digital recorder installed on June 16, 1992.

PERIOD OF RECORD.--June 1992 to January 1994, discontinued.

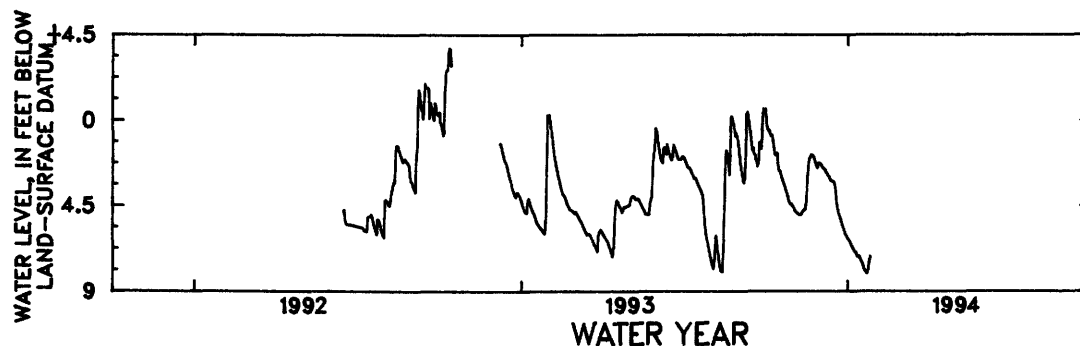
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +3.94 ft (+1.20 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 8.05 ft (2.45 m) below land-surface datum, Jan. 23, 1994

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+ .60	4.56	2.28	6.24	---	---	---	---	---	---	---	---
2	.05	4.66	2.33	6.32	---	---	---	---	---	---	---	---
3	.36	4.76	2.43	6.41	---	---	---	---	---	---	---	---
4	.57	4.82	2.49	6.53	---	---	---	---	---	---	---	---
5	.50	4.88	2.56	6.62	---	---	---	---	---	---	---	---
6	.76	4.90	2.58	6.70	---	---	---	---	---	---	---	---
7	.83	4.96	2.67	6.80	---	---	---	---	---	---	---	---
8	.79	4.98	2.77	6.87	---	---	---	---	---	---	---	---
9	1.06	4.99	2.81	6.94	---	---	---	---	---	---	---	---
10	1.44	4.98	2.95	7.00	---	---	---	---	---	---	---	---
11	1.78	4.87	2.98	7.14	---	---	---	---	---	---	---	---
12	1.83	4.80	3.10	7.19	---	---	---	---	---	---	---	---
13	1.74	4.74	3.18	7.22	---	---	---	---	---	---	---	---
14	1.78	4.70	3.20	7.18	---	---	---	---	---	---	---	---
15	2.30	4.66	3.22	7.29	---	---	---	---	---	---	---	---
16	2.68	4.17	3.25	7.42	---	---	---	---	---	---	---	---
17	2.66	3.01	3.31	7.52	---	---	---	---	---	---	---	---
18	2.86	2.33	3.58	7.64	---	---	---	---	---	---	---	---
19	3.03	2.02	4.10	7.80	---	---	---	---	---	---	---	---
20	3.16	1.93	4.49	7.90	---	---	---	---	---	---	---	---
21	3.31	1.83	4.73	7.96	---	---	---	---	---	---	---	---
22	3.43	1.83	4.96	8.04	---	---	---	---	---	---	---	---
23	3.59	1.86	5.05	8.05	---	---	---	---	---	---	---	---
24	3.76	1.95	5.20	7.83	---	---	---	---	---	---	---	---
25	3.90	2.10	5.37	7.41	---	---	---	---	---	---	---	---
26	4.03	2.23	5.54	7.21	---	---	---	---	---	---	---	---
27	4.26	2.37	5.65	---	---	---	---	---	---	---	---	---
28	4.36	2.51	5.77	---	---	---	---	---	---	---	---	---
29	4.43	2.34	5.96	---	---	---	---	---	---	---	---	---
30	4.41	2.25	6.06	---	---	---	---	---	---	---	---	---
31	4.49	---	6.13	---	---	---	---	---	---	---	---	---
MEAN	2.37	3.57	3.89	7.20	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 4.14 HIGHEST +.60 OCT. 1, 1993 LOWEST 8.05 JAN. 23, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180643067080400. Local number, CR-TW-3.

LOCATION.--Lat 18°06'43", long 67°08'04", Hydrologic Unit 21010003, 1.75 mi northeast of Cabo Rojo plaza, 0.64 mi northwest of Hacienda La Ratina, and 1.58 mi southwest of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-3.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-9.14 m). Depth 30 ft (9.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 27.2 ft (8.29 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.56 ft (1.69 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 12, 1992. Automatic digital recorder installed on July 10, 1992.

PERIOD OF RECORD.--March 1992 to January 1994, discontinued.

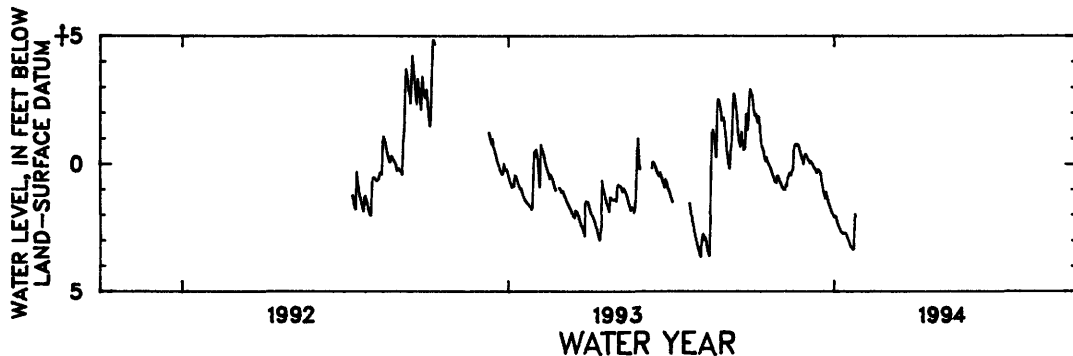
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +5.40 ft (+1.64 m) above land-surface datum, Oct. 11, 1992; lowest water level recorded, 3.65 ft (1.11 m) below land-surface datum, Aug. 4, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	+2.69	.69	+.35	2.09	---	---	---	---	---	---	---	---
2	+2.34	.76	+.27	2.03	---	---	---	---	---	---	---	---
3	+2.06	.86	+.19	2.09	---	---	---	---	---	---	---	---
4	+1.90	.92	+.13	2.24	---	---	---	---	---	---	---	---
5	+1.95	.99	+.05	2.36	---	---	---	---	---	---	---	---
6	+1.77	.95	+.11	2.45	---	---	---	---	---	---	---	---
7	+1.63	1.00	+.05	2.54	---	---	---	---	---	---	---	---
8	+1.86	.81	.01	2.63	---	---	---	---	---	---	---	---
9	+1.57	.84	.08	2.67	---	---	---	---	---	---	---	---
10	+1.22	.55	.14	2.68	---	---	---	---	---	---	---	---
11	+.91	.46	.21	2.75	---	---	---	---	---	---	---	---
12	+.68	.35	.29	2.72	---	---	---	---	---	---	---	---
13	+.59	.35	.34	2.71	---	---	---	---	---	---	---	---
14	+.49	.44	.21	2.72	---	---	---	---	---	---	---	---
15	+.27	.27	.22	2.82	---	---	---	---	---	---	---	---
16	+.12	.21	.30	2.91	---	---	---	---	---	---	---	---
17	+.27	+.54	.36	3.02	---	---	---	---	---	---	---	---
18	+.15	+.74	.62	3.11	---	---	---	---	---	---	---	---
19	+.05	+.78	.86	3.21	---	---	---	---	---	---	---	---
20	.02	+.72	1.06	3.25	---	---	---	---	---	---	---	---
21	.12	+.77	1.19	3.30	---	---	---	---	---	---	---	---
22	.19	+.75	1.34	3.36	---	---	---	---	---	---	---	---
23	.30	+.61	1.09	3.33	---	---	---	---	---	---	---	---
24	.43	+.49	1.25	2.09	---	---	---	---	---	---	---	---
25	.51	+.35	1.40	1.99	---	---	---	---	---	---	---	---
26	.61	+.23	1.55	---	---	---	---	---	---	---	---	---
27	.71	+.13	1.65	---	---	---	---	---	---	---	---	---
28	.73	.00	1.74	---	---	---	---	---	---	---	---	---
29	.47	+.33	1.84	---	---	---	---	---	---	---	---	---
30	.46	+.39	1.94	---	---	---	---	---	---	---	---	---
31	.59	---	2.00	---	---	---	---	---	---	---	---	---
MEAN	+.56	.12	.66	2.68	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN .63 HIGHEST +2.69 OCT. 1, 1993 LOWEST 3.37 JAN. 22, 1994

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180650067073700. Local number, CR-TW-4.

LOCATION.--Lat 18°06'50", long 67°07'37", Hydrologic Unit 21010003, 2.15 mi northeast of Cabo Rojo plaza, 0.68 mi northeast of Hacienda La Ratina, and 2.13 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-4.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-28 ft (0-8.53 m), screened 15-25 ft (4.57-7.62 m). Depth 28 ft (8.53 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 37.2 ft (11.3 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.96 ft (1.21 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 13, 1992. Automatic digital recorder installed on June 30, 1992.

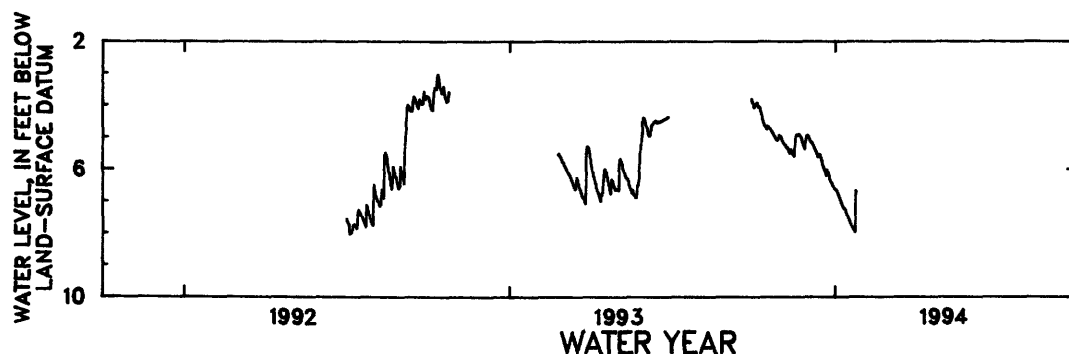
PERIOD OF RECORD.--June 1992 to January 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.99 ft (0.91 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 8.05 ft (2.45 m) below land-surface datum, July 5, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.95	4.99	4.93	6.64	---	---	---	---	---	---	---	---
2	4.09	5.09	4.97	6.65	---	---	---	---	---	---	---	---
3	4.02	5.14	5.05	6.68	---	---	---	---	---	---	---	---
4	3.97	5.19	5.11	6.76	---	---	---	---	---	---	---	---
5	3.92	5.25	5.17	6.83	---	---	---	---	---	---	---	---
6	4.02	5.25	5.16	6.90	---	---	---	---	---	---	---	---
7	4.06	5.32	5.23	6.98	---	---	---	---	---	---	---	---
8	4.06	5.31	5.28	7.05	---	---	---	---	---	---	---	---
9	4.16	5.36	5.35	7.12	---	---	---	---	---	---	---	---
10	4.27	5.45	5.41	7.18	---	---	---	---	---	---	---	---
11	4.38	5.50	5.45	7.24	---	---	---	---	---	---	---	---
12	4.50	5.38	5.54	7.24	---	---	---	---	---	---	---	---
13	4.58	5.43	5.62	7.29	---	---	---	---	---	---	---	---
14	4.65	5.52	5.53	7.40	---	---	---	---	---	---	---	---
15	4.70	5.52	5.54	7.49	---	---	---	---	---	---	---	---
16	4.75	5.59	5.64	7.57	---	---	---	---	---	---	---	---
17	4.64	5.11	5.73	7.63	---	---	---	---	---	---	---	---
18	4.67	4.95	5.83	7.71	---	---	---	---	---	---	---	---
19	4.72	4.91	5.92	7.78	---	---	---	---	---	---	---	---
20	4.74	4.93	6.01	7.83	---	---	---	---	---	---	---	---
21	4.81	4.90	6.10	7.88	---	---	---	---	---	---	---	---
22	4.82	4.93	6.20	7.92	---	---	---	---	---	---	---	---
23	4.88	4.97	6.01	7.97	---	---	---	---	---	---	---	---
24	4.95	5.02	6.09	6.67	---	---	---	---	---	---	---	---
25	4.98	5.12	6.20	---	---	---	---	---	---	---	---	---
26	5.06	5.21	6.33	---	---	---	---	---	---	---	---	---
27	5.09	5.28	6.40	---	---	---	---	---	---	---	---	---
28	5.10	5.37	6.43	---	---	---	---	---	---	---	---	---
29	5.05	5.09	6.51	---	---	---	---	---	---	---	---	---
30	4.93	4.94	6.55	---	---	---	---	---	---	---	---	---
31	4.95	---	6.61	---	---	---	---	---	---	---	---	---
MEAN	4.56	5.20	5.74	7.27	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 5.60 HIGHEST 3.89 OCT. 5, 1993 LOWEST 7.97 JAN. 23, 1994



GROUND-WATER LEVELS

473

RIO GUANAJIBO BASIN

180557067083100. Local number, CR-TW-5.

LOCATION.--Lat 18°05'57", long 67°08'31", Hydrologic Unit 21010003, 0.75 mi northeast of Cabo Rojo plaza, 0.92 mi southeast of Hacienda La Ratina, and 1.83 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-5.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-25 ft (0-7.62 m), screened 15-25 ft (4.57-7.62 m). Depth 25 ft (7.62 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35.26 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.88 ft (1.18 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 17, 1992. Automatic digital recorder installed on July 16, 1992.

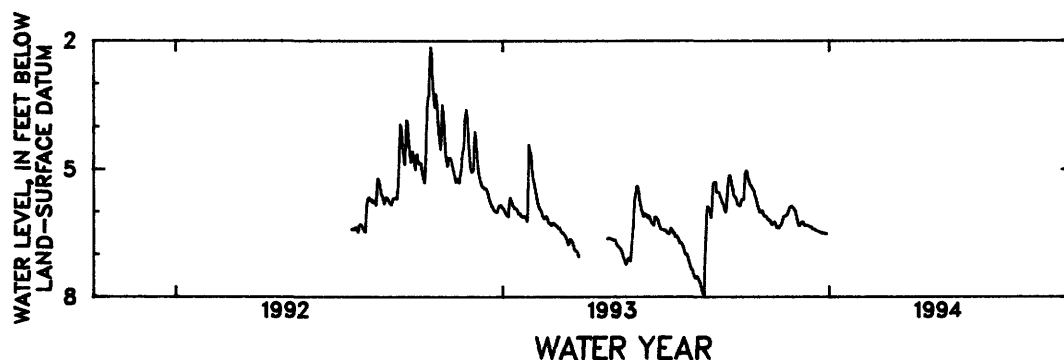
PERIOD OF RECORD.--July 1992 to December 1993, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.12 ft (0.65 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 7.99 ft (2.44 m) below land-surface datum, Aug. 13, 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.08	6.24	6.25	---	---	---	---	---	---	---	---	---
2	5.21	6.29	6.24	---	---	---	---	---	---	---	---	---
3	5.27	6.37	6.25	---	---	---	---	---	---	---	---	---
4	5.35	6.37	6.31	---	---	---	---	---	---	---	---	---
5	5.38	6.39	6.33	---	---	---	---	---	---	---	---	---
6	5.41	6.39	6.33	---	---	---	---	---	---	---	---	---
7	5.46	6.32	6.32	---	---	---	---	---	---	---	---	---
8	5.49	6.32	6.33	---	---	---	---	---	---	---	---	---
9	5.53	6.27	6.34	---	---	---	---	---	---	---	---	---
10	5.64	6.18	6.35	---	---	---	---	---	---	---	---	---
11	5.70	6.11	6.36	---	---	---	---	---	---	---	---	---
12	5.80	6.10	6.36	---	---	---	---	---	---	---	---	---
13	5.88	6.10	6.40	---	---	---	---	---	---	---	---	---
14	5.94	6.08	6.41	---	---	---	---	---	---	---	---	---
15	6.01	6.07	6.41	---	---	---	---	---	---	---	---	---
16	6.01	6.01	6.43	---	---	---	---	---	---	---	---	---
17	6.00	5.93	6.44	---	---	---	---	---	---	---	---	---
18	5.98	5.89	6.45	---	---	---	---	---	---	---	---	---
19	6.06	5.88	6.46	---	---	---	---	---	---	---	---	---
20	6.09	5.87	6.47	---	---	---	---	---	---	---	---	---
21	6.11	5.90	6.48	---	---	---	---	---	---	---	---	---
22	6.11	5.92	6.49	---	---	---	---	---	---	---	---	---
23	6.14	5.96	6.50	---	---	---	---	---	---	---	---	---
24	6.19	5.99	6.50	---	---	---	---	---	---	---	---	---
25	6.19	6.08	6.51	---	---	---	---	---	---	---	---	---
26	6.21	6.19	6.51	---	---	---	---	---	---	---	---	---
27	6.23	6.27	6.52	---	---	---	---	---	---	---	---	---
28	6.29	6.33	6.52	---	---	---	---	---	---	---	---	---
29	6.31	6.33	6.53	---	---	---	---	---	---	---	---	---
30	6.29	6.27	---	---	---	---	---	---	---	---	---	---
31	6.25	---	---	---	---	---	---	---	---	---	---	---
MEAN	5.86	6.15	6.41	---	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 6.13 HIGHEST 5.05 OCT. 1, 1993 LOWEST 6.53 DEC. 29, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180617067083300. Local number, CR-TW-6.

LOCATION.--Lat 18°06'17", long 67°08'33", Hydrologic Unit 21010003, 1.11 mi northeast of Cabo Rojo plaza, 1.27 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.50 southeast of Escuela Sabana Alta.

Owner: U.S. Geological Survey, WRD, Name: CR-TW-6.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-10.0 m). Depth 30 ft (10.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 32.9 ft (10.0 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.77 ft (1.76 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

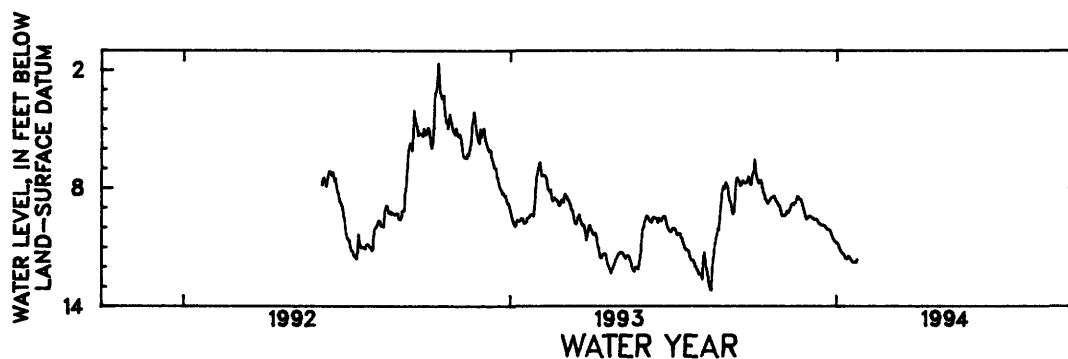
PERIOD OF RECORD.--June 1992 to January 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.44 ft (0.44 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 13.2 ft (4.02 m) below land-surface datum, Aug. 13-14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.54	9.41	9.45	10.79	---	---	---	---	---	---	---	---
2	6.99	9.39	9.43	10.79	---	---	---	---	---	---	---	---
3	7.35	9.40	9.46	10.88	---	---	---	---	---	---	---	---
4	7.54	9.38	9.47	11.03	---	---	---	---	---	---	---	---
5	7.69	9.33	9.53	11.14	---	---	---	---	---	---	---	---
6	7.75	9.18	9.55	11.22	---	---	---	---	---	---	---	---
7	7.59	9.26	9.60	11.27	---	---	---	---	---	---	---	---
8	7.60	9.23	9.60	11.32	---	---	---	---	---	---	---	---
9	7.75	9.13	9.58	11.38	---	---	---	---	---	---	---	---
10	8.02	8.99	9.60	11.47	---	---	---	---	---	---	---	---
11	8.24	8.84	9.69	11.58	---	---	---	---	---	---	---	---
12	8.36	8.82	9.79	11.60	---	---	---	---	---	---	---	---
13	8.54	8.78	9.82	11.60	---	---	---	---	---	---	---	---
14	8.61	8.83	9.87	11.46	---	---	---	---	---	---	---	---
15	8.75	8.74	9.87	11.47	---	---	---	---	---	---	---	---
16	8.79	8.74	9.89	11.55	---	---	---	---	---	---	---	---
17	8.67	8.60	9.90	11.62	---	---	---	---	---	---	---	---
18	8.65	8.44	9.91	11.70	---	---	---	---	---	---	---	---
19	8.53	8.43	9.93	11.75	---	---	---	---	---	---	---	---
20	8.49	8.55	10.01	11.77	---	---	---	---	---	---	---	---
21	8.47	8.58	10.09	11.77	---	---	---	---	---	---	---	---
22	8.42	8.60	10.09	11.78	---	---	---	---	---	---	---	---
23	8.41	8.73	10.12	11.78	---	---	---	---	---	---	---	---
24	8.54	8.90	10.13	11.64	---	---	---	---	---	---	---	---
25	8.67	9.06	10.20	---	---	---	---	---	---	---	---	---
26	8.72	9.23	10.33	---	---	---	---	---	---	---	---	---
27	8.80	9.41	10.46	---	---	---	---	---	---	---	---	---
28	8.89	9.57	10.57	---	---	---	---	---	---	---	---	---
29	8.91	9.55	10.66	---	---	---	---	---	---	---	---	---
30	9.13	9.49	10.69	---	---	---	---	---	---	---	---	---
31	9.33	---	10.74	---	---	---	---	---	---	---	---	---
MEAN	8.28	9.02	9.94	11.43	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 9.57 HIGHEST 6.54 OCT. 1, 1993 LOWEST 11.78 JAN. 21, 22, 23, 1994



GROUND-WATER LEVELS

475

RIO GUANAJIBO BASIN

180604067085100. Local number, CR-TW-7.

LOCATION.--Lat 18°06'04", long 67°08'51", Hydrologic Unit 21010003, 0.80 mi northwest of Cabo Rojo plaza, 1.29 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.56 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-7.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 42.2 ft (12.9 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.69 ft (1.73 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

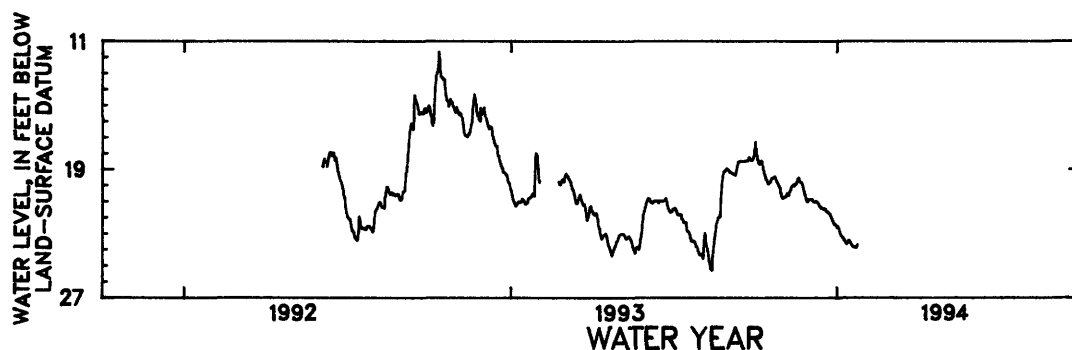
PERIOD OF RECORD.--June 1992 to January 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.15 ft (3.40 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 25.30 ft (7.71 m) below land-surface datum, Aug. 13, 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17.25	20.81	20.86	22.62	---	---	---	---	---	---	---	---
2	17.71	20.72	20.84	22.54	---	---	---	---	---	---	---	---
3	18.16	20.74	20.88	22.68	---	---	---	---	---	---	---	---
4	18.40	20.71	20.86	22.89	---	---	---	---	---	---	---	---
5	18.61	20.64	20.98	23.05	---	---	---	---	---	---	---	---
6	18.68	20.49	21.03	23.13	---	---	---	---	---	---	---	---
7	18.47	20.60	21.04	23.20	---	---	---	---	---	---	---	---
8	18.46	20.61	20.99	23.28	---	---	---	---	---	---	---	---
9	18.60	20.38	20.99	23.37	---	---	---	---	---	---	---	---
10	18.93	20.25	21.06	23.46	---	---	---	---	---	---	---	---
11	19.22	20.05	21.14	23.62	---	---	---	---	---	---	---	---
12	19.38	20.04	21.29	23.67	---	---	---	---	---	---	---	---
13	19.61	19.95	21.29	23.58	---	---	---	---	---	---	---	---
14	19.67	20.01	21.43	23.40	---	---	---	---	---	---	---	---
15	19.86	19.93	21.40	23.48	---	---	---	---	---	---	---	---
16	19.91	19.91	21.43	23.57	---	---	---	---	---	---	---	---
17	19.81	19.78	21.48	23.66	---	---	---	---	---	---	---	---
18	19.81	19.58	21.45	23.76	---	---	---	---	---	---	---	---
19	19.61	19.53	21.51	23.82	---	---	---	---	---	---	---	---
20	19.54	19.75	21.63	23.85	---	---	---	---	---	---	---	---
21	19.52	19.78	21.63	23.86	---	---	---	---	---	---	---	---
22	19.47	19.82	21.70	23.89	---	---	---	---	---	---	---	---
23	19.44	19.95	21.75	23.86	---	---	---	---	---	---	---	---
24	19.58	20.16	21.79	23.70	---	---	---	---	---	---	---	---
25	19.74	20.39	21.91	---	---	---	---	---	---	---	---	---
26	19.81	20.61	22.05	---	---	---	---	---	---	---	---	---
27	19.94	20.82	22.20	---	---	---	---	---	---	---	---	---
28	20.03	20.99	22.33	---	---	---	---	---	---	---	---	---
29	20.15	21.01	22.44	---	---	---	---	---	---	---	---	---
30	20.46	20.87	22.43	---	---	---	---	---	---	---	---	---
31	20.71	---	22.49	---	---	---	---	---	---	---	---	---
MEAN	19.31	20.30	21.49	23.41	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 21.00 HIGHEST 17.25 OCT. 1, 1993 LOWEST 23.90 JAN. 21, 22, 1994



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180547067084800. Local number, CR-TW-8.

LOCATION.--Lat 18°05'47", long 67°08'48", Hydrologic Unit 21010003, 0.50 mi north of Cabo Rojo plaza, 1.10 m, northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.85 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-8.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-39 ft (0-11.7 m), screened 25-35 ft (7.62-10.7 m). Depth 39 ft (11.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40.7 ft (12.4 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.94 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 16, 1992.

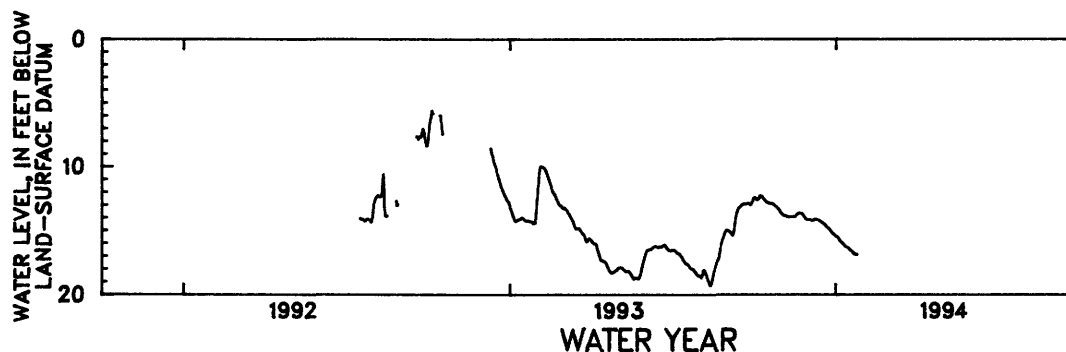
PERIOD OF RECORD.--July 1992 to January 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.60 ft (1.71 m) below land-surface datum, Oct. 5, 1992; lowest water level recorded, 19.31 ft (5.88 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.46	13.66	14.16	15.45	---	---	---	---	---	---	---	---
2	12.40	13.73	14.16	15.49	---	---	---	---	---	---	---	---
3	12.48	13.80	14.18	15.53	---	---	---	---	---	---	---	---
4	12.55	13.84	14.19	15.64	---	---	---	---	---	---	---	---
5	12.60	13.86	14.22	15.75	---	---	---	---	---	---	---	---
6	12.53	13.87	14.23	15.85	---	---	---	---	---	---	---	---
7	12.43	13.90	14.20	15.90	---	---	---	---	---	---	---	---
8	12.30	13.94	14.16	15.96	---	---	---	---	---	---	---	---
9	12.28	13.94	14.13	16.04	---	---	---	---	---	---	---	---
10	12.31	13.94	14.13	16.11	---	---	---	---	---	---	---	---
11	12.40	13.94	14.13	16.19	---	---	---	---	---	---	---	---
12	12.50	13.92	14.18	16.28	---	---	---	---	---	---	---	---
13	12.60	13.92	14.20	16.31	---	---	---	---	---	---	---	---
14	12.67	13.92	14.26	16.33	---	---	---	---	---	---	---	---
15	12.76	13.92	14.31	16.37	---	---	---	---	---	---	---	---
16	12.81	13.92	14.36	16.44	---	---	---	---	---	---	---	---
17	12.83	13.90	14.41	16.51	---	---	---	---	---	---	---	---
18	12.86	13.80	14.46	16.57	---	---	---	---	---	---	---	---
19	12.87	13.72	14.51	16.65	---	---	---	---	---	---	---	---
20	12.87	13.68	14.58	16.71	---	---	---	---	---	---	---	---
21	12.88	13.66	14.66	16.76	---	---	---	---	---	---	---	---
22	12.90	13.65	14.73	16.82	---	---	---	---	---	---	---	---
23	12.92	13.65	14.80	16.87	---	---	---	---	---	---	---	---
24	12.99	13.66	14.86	16.89	---	---	---	---	---	---	---	---
25	13.07	13.73	14.92	16.89	---	---	---	---	---	---	---	---
26	13.13	13.85	15.01	---	---	---	---	---	---	---	---	---
27	13.19	13.96	15.11	---	---	---	---	---	---	---	---	---
28	13.28	14.08	15.20	---	---	---	---	---	---	---	---	---
29	13.34	14.14	15.26	---	---	---	---	---	---	---	---	---
30	13.43	14.16	15.31	---	---	---	---	---	---	---	---	---
31	13.58	---	15.39	---	---	---	---	---	---	---	---	---
MEAN	12.78	13.86	14.53	16.25	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 14.26 HIGHEST 12.27 OCT. 9, 1993 LOWEST 16.89 JAN. 24, 25, 1994



GROUND-WATER LEVELS

477

RIO GUANAJIBO BASIN

180628067084300. Local number, CR-TW-9A.

LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-9A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-24 ft (0-7.32 m), screened 19-24 ft (5.79-7.32 m). Depth 24 ft (7.32 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 33.21 ft (10.1 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.92 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 8, 1992.

PERIOD OF RECORD.--July 1992 to January 1994, discontinued.

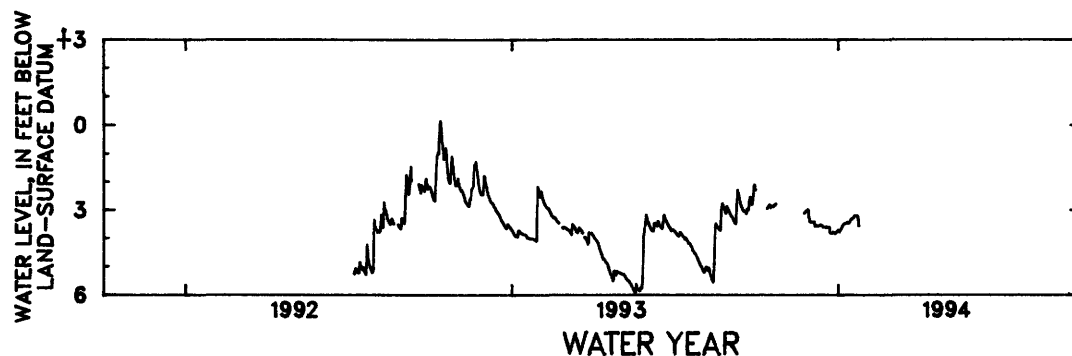
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.24 ft (+0.07 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 5.99 ft (1.82 m) below land-surface datum, May 19, 20, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	3.43	3.71	---	---	---	---	---	---	---	---
2	---	---	3.44	3.78	---	---	---	---	---	---	---	---
3	---	---	3.43	3.73	---	---	---	---	---	---	---	---
4	---	---	3.43	3.67	---	---	---	---	---	---	---	---
5	---	---	3.42	3.60	---	---	---	---	---	---	---	---
6	---	---	3.58	3.55	---	---	---	---	---	---	---	---
7	---	---	3.55	3.50	---	---	---	---	---	---	---	---
8	---	---	3.56	3.48	---	---	---	---	---	---	---	---
9	---	---	3.56	3.47	---	---	---	---	---	---	---	---
10	---	---	3.56	3.46	---	---	---	---	---	---	---	---
11	---	---	3.56	3.43	---	---	---	---	---	---	---	---
12	---	---	3.53	3.47	---	---	---	---	---	---	---	---
13	2.96	---	3.54	3.45	---	---	---	---	---	---	---	---
14	2.90	---	3.57	3.40	---	---	---	---	---	---	---	---
15	2.85	---	3.61	3.33	---	---	---	---	---	---	---	---
16	2.82	---	3.61	3.31	---	---	---	---	---	---	---	---
17	2.92	---	3.61	3.29	---	---	---	---	---	---	---	---
18	2.88	---	3.62	3.27	---	---	---	---	---	---	---	---
19	2.86	---	3.60	3.20	---	---	---	---	---	---	---	---
20	2.87	---	3.62	3.20	---	---	---	---	---	---	---	---
21	2.84	---	3.61	3.21	---	---	---	---	---	---	---	---
22	2.83	---	3.62	3.19	---	---	---	---	---	---	---	---
23	2.79	---	3.83	3.25	---	---	---	---	---	---	---	---
24	---	3.12	3.83	3.56	---	---	---	---	---	---	---	---
25	---	3.07	3.83	---	---	---	---	---	---	---	---	---
26	---	3.04	3.79	---	---	---	---	---	---	---	---	---
27	---	3.02	3.81	---	---	---	---	---	---	---	---	---
28	---	2.99	3.84	---	---	---	---	---	---	---	---	---
29	---	3.28	3.82	---	---	---	---	---	---	---	---	---
30	---	3.41	3.78	---	---	---	---	---	---	---	---	---
31	---	---	3.74	---	---	---	---	---	---	---	---	---
MEAN	2.87	3.13	3.62	3.44	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 3.40 HIGHEST 2.26 OCT. 1, 1993 LOWEST 3.85 DEC. 28, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180547067073100. Local number, CR-TW-10.

LOCATION.--Lat 18°05'47", long 67°07'31", Hydrologic Unit 21010003, 1.46 mi northeast of Cabo Rojo plaza, 0.60 mi northeast of Escuela Segunda Unidad Antonio Acarón Correa, and 2.74 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-10.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 36.4 ft (11.1 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Observation well. Drilled on May 21, 1992. Automatic digital recorder installed on July 6, 1992.

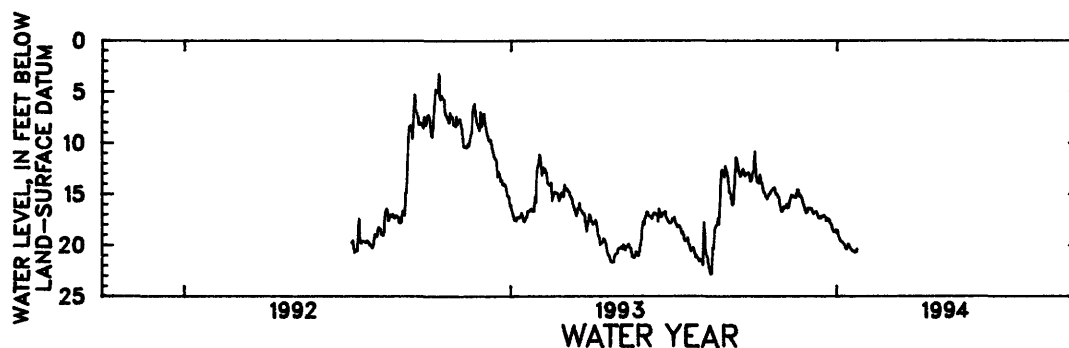
PERIOD OF RECORD.--July 1992 to January 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.98 ft (0.91 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 22.9 ft (6.97 m) below land-surface datum, Aug. 13, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.79	16.67	16.39	18.84	---	---	---	---	---	---	---	---
2	12.71	16.22	16.36	18.57	---	---	---	---	---	---	---	---
3	13.38	16.37	16.49	19.14	---	---	---	---	---	---	---	---
4	13.86	16.27	16.44	19.40	---	---	---	---	---	---	---	---
5	13.87	16.16	16.78	19.57	---	---	---	---	---	---	---	---
6	13.96	15.97	16.93	19.64	---	---	---	---	---	---	---	---
7	13.07	16.33	16.79	19.70	---	---	---	---	---	---	---	---
8	13.80	16.26	16.74	19.79	---	---	---	---	---	---	---	---
9	13.93	15.76	16.74	19.91	---	---	---	---	---	---	---	---
10	14.37	15.49	16.95	20.09	---	---	---	---	---	---	---	---
11	14.80	15.08	17.15	20.36	---	---	---	---	---	---	---	---
12	14.89	15.25	17.38	20.40	---	---	---	---	---	---	---	---
13	15.24	15.16	17.31	20.14	---	---	---	---	---	---	---	---
14	15.28	15.30	17.38	19.88	---	---	---	---	---	---	---	---
15	15.47	15.31	17.14	20.08	---	---	---	---	---	---	---	---
16	15.19	15.34	17.16	20.25	---	---	---	---	---	---	---	---
17	14.98	14.86	17.22	20.39	---	---	---	---	---	---	---	---
18	14.99	14.55	17.06	20.51	---	---	---	---	---	---	---	---
19	14.74	14.61	17.28	20.58	---	---	---	---	---	---	---	---
20	14.62	15.22	17.65	20.59	---	---	---	---	---	---	---	---
21	14.59	15.09	17.36	20.69	---	---	---	---	---	---	---	---
22	14.44	15.24	17.65	20.57	---	---	---	---	---	---	---	---
23	14.37	15.45	17.47	20.63	---	---	---	---	---	---	---	---
24	14.86	15.79	17.65	20.39	---	---	---	---	---	---	---	---
25	15.03	16.05	17.90	---	---	---	---	---	---	---	---	---
26	15.03	16.36	18.06	---	---	---	---	---	---	---	---	---
27	15.28	16.61	18.41	---	---	---	---	---	---	---	---	---
28	15.33	16.85	18.62	---	---	---	---	---	---	---	---	---
29	15.94	16.73	18.72	---	---	---	---	---	---	---	---	---
30	16.41	16.36	18.58	---	---	---	---	---	---	---	---	---
31	16.70	---	18.52	---	---	---	---	---	---	---	---	---
MEAN	14.58	15.76	17.36	20.00	---	---	---	---	---	---	---	---

WTR YR 1994 MEAN 16.75 HIGHEST 10.62 OCT. 1, 1993 LOWEST 20.77 JAN. 21, 22, 1994



GROUND-WATER LEVELS

479

RIO CULEBRINAS BASIN

182442067091700. Local number, 200.

LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.40 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.20 mi north of Hwy 2 km 146.4. Owner: Carmelo Sánchez, Name: Aguadilla Cement Well.

AQUIFER.--Surficial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20 ft (0-6.10 m), perforated 11-20 ft (3.35-6.10 m). Depth 20 ft (6.10 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.25 ft (0.99 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

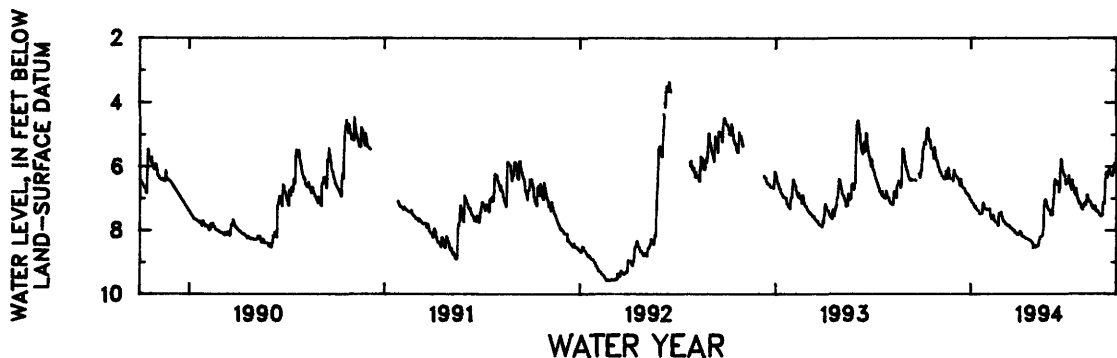
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.24 ft (0.68 m) below land-surface datum, Aug 25, 1988; lowest water level recorded, 9.60 ft (2.93 m) below land-surface datum, Feb. 20, 1992.

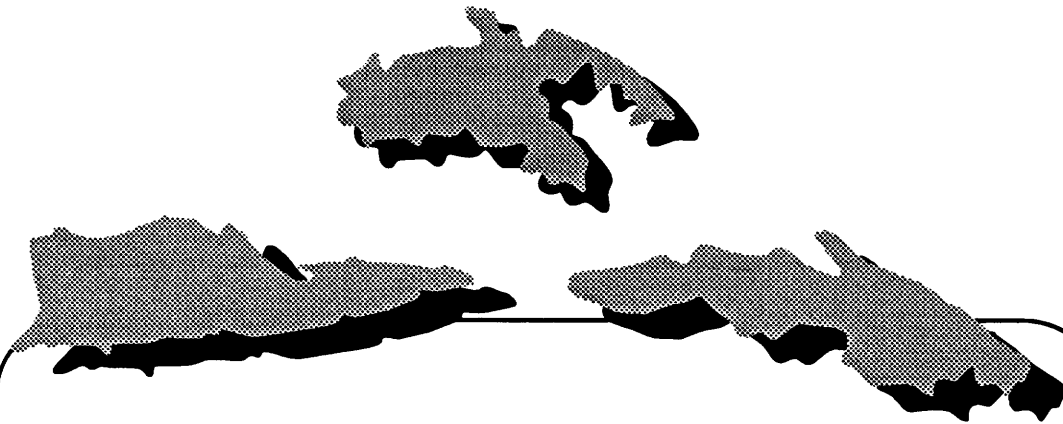
WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.00	5.97	6.11	7.05	7.34	7.58	8.11	8.47	7.35	6.38	7.17	7.55
2	5.76	6.02	6.22	7.06	7.35	7.64	8.11	8.54	7.47	6.40	7.14	7.56
3	5.42	6.04	6.27	7.12	7.35	7.68	8.03	8.53	7.50	6.27	7.16	7.49
4	5.43	6.13	6.28	7.13	7.34	7.73	8.03	8.50	7.02	6.40	7.20	7.53
5	5.23	6.17	6.31	7.14	7.34	7.73	8.05	8.48	7.03	6.51	7.12	7.14
6	5.23	6.18	6.32	7.16	7.33	7.73	8.11	8.49	6.47	6.58	6.89	7.12
7	5.23	6.22	6.38	7.22	7.55	7.79	8.18	8.49	6.39	6.66	6.89	7.12
8	5.29	6.28	6.39	7.27	7.59	7.79	8.18	8.48	6.43	6.73	6.98	7.16
9	5.03	6.29	6.40	7.28	7.64	7.80	8.19	8.35	6.50	6.42	7.05	6.47
10	4.80	6.32	6.40	7.24	7.64	7.81	8.19	8.28	6.55	6.43	7.09	6.21
11	4.93	6.35	6.59	7.32	7.55	7.85	8.20	8.21	6.46	6.59	7.09	6.18
12	4.79	6.39	6.61	7.34	7.51	7.84	8.22	8.20	6.49	6.69	7.09	6.27
13	4.84	6.39	6.38	7.36	7.55	7.84	8.24	8.19	6.57	6.76	7.12	6.36
14	5.11	6.39	6.40	7.38	7.68	7.84	8.25	8.18	6.59	6.84	7.17	6.14
15	5.20	6.34	6.59	7.39	7.70	7.88	8.26	8.17	6.81	6.88	7.25	6.21
16	5.16	6.13	6.64	7.39	7.72	7.91	8.26	8.13	6.67	6.89	7.22	6.01
17	5.25	6.22	6.68	7.46	7.74	7.91	8.26	7.89	6.20	6.69	7.30	6.05
18	5.42	6.36	6.68	7.48	7.75	7.92	8.28	7.24	5.78	6.88	7.32	6.16
19	5.43	6.37	6.68	7.49	7.76	7.94	8.29	7.05	5.76	6.96	7.34	6.22
20	5.45	6.02	6.71	7.46	7.76	7.94	8.29	7.03	5.82	7.02	7.29	6.28
21	5.46	6.10	6.74	7.47	7.84	7.97	8.30	7.03	5.98	7.08	7.23	6.21
22	5.46	6.28	6.79	7.46	7.83	8.00	8.30	7.09	6.11	7.15	7.35	6.23
23	5.76	6.35	6.83	7.46	7.45	7.99	8.32	7.20	6.17	7.13	7.38	6.29
24	5.64	6.37	6.86	7.13	7.48	8.01	8.33	7.25	6.25	7.14	7.40	6.22
25	5.37	6.38	6.86	7.13	7.52	8.07	8.35	7.30	6.26	7.17	7.37	5.96
26	5.49	6.39	6.86	7.22	7.46	8.07	8.38	7.36	6.30	7.28	7.42	5.90
27	5.63	6.39	6.90	7.28	7.43	8.07	8.38	7.37	6.45	7.28	7.41	5.96
28	5.74	6.39	6.92	7.32	7.50	8.10	8.57	7.37	6.55	7.33	7.44	6.08
29	5.81	6.46	6.93	7.32	---	8.13	8.49	7.38	6.45	7.36	7.49	6.17
30	5.81	6.09	7.00	7.33	---	8.14	8.48	7.49	6.52	7.23	7.53	5.59
31	5.88	---	7.03	7.35	---	8.10	---	7.52	---	7.26	7.54	---
MEAN	5.39	6.26	6.61	7.30	7.56	7.90	8.25	7.85	6.50	6.85	7.24	6.46

WTR YR 1994 MEAN 7.01 HIGHEST 4.45 OCT. 9, 1993 LOWEST 8.57 APR. 28, 1994



THIS PAGE WAS LEFT BLANK
INTENTIONALLY



Surface-Water Records for U.S. Virgin Islands

ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI

LOCATION.--Lat 18°21'57", long 64°57'34", Hydrologic Unit 21020001, on right bank near Hull Bay Road, 0.5 mi (0.8 km) upstream from mouth, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--0.49 mi² (1.27 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1962 to February 1967, March 1979 to April 1981, May 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 280 ft (85 m), from topographic map. December 1962 to February 1967 and March 1979 to April 1981 at site about 100 ft (30 m) upstream at different datum.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.05	e.05	e.04	e.05	.11	.01	.01	.01	.01	.01	.01
2	.04	.04	e.04	e.04	e.03	.04	.02	.01	.01	.01	.01	.01
3	.03	.04	e.03	e.04	e.03	.02	.02	.01	.01	.01	.01	.01
4	.02	.03	e.03	e.04	e.02	.02	.01	.01	.01	.01	.01	.01
5	.02	.03	e.03	e.03	e.02	.02	.01	.01	.02	.01	.01	.01
6	.01	.03	e.03	e.03	e.02	.01	.01	.01	.02	.01	.01	.01
7	.02	.03	e.03	e.03	e.02	.01	.01	.02	.02	.01	.01	.01
8	.02	.04	e.03	e.03	e.02	.01	.01	.01	.02	.01	.01	.01
9	.01	.04	e.03	e.03	.02	.01	.01	.01	.02	.01	.01	.01
10	.01	.04	e.03	e.04	.03	.01	.01	.01	.02	.01	.01	.01
11	.01	.04	e.03	e.05	.02	.01	.01	.02	.02	.01	.01	.01
12	.01	.04	e.03	e.04	.02	.01	.01	.02	.02	.01	.01	.01
13	.02	.04	e.05	e.04	.02	.01	.01	.01	.02	.01	.01	.01
14	.02	.05	e.04	e.02	.02	.01	.01	.01	.02	.01	.01	.01
15	.02	.08	e.04	e.02	.02	.01	.01	.02	.02	.01	.01	.01
16	.02	.19	e.03	e.05	.02	.01	.01	.02	.01	.01	.01	.01
17	.02	e.15	e.04	e.05	.02	.01	.01	.03	.01	.01	.01	.01
18	.02	e.08	e.05	e.03	.03	.01	.01	.03	.01	.01	.01	.01
19	.02	e.05	e.05	e.05	.02	.01	.01	.01	.01	.01	.01	.01
20	.02	e.05	e.05	e.04	.02	.01	.01	.01	.01	.01	.01	.01
21	.02	e.02	e.05	e.05	.02	.01	.01	.01	.01	.00	.01	.00
22	.02	e.02	e.05	e.04	.02	.02	.01	.02	.01	.01	.01	.01
23	.04	e.02	e.05	e.03	.02	.02	.01	.02	.01	.01	.01	.01
24	.02	e.06	e.05	e.03	.02	.02	.02	.02	.01	.01	.01	.00
25	.03	e.15	e.05	e.02	.02	.02	.02	.02	.01	.01	.01	.00
26	.03	e9.9	e.05	e.03	.02	.02	.01	.02	.01	.01	.01	.00
27	.03	e1.0	e.05	e.01	.02	.02	.01	.03	.01	.01	.01	.01
28	.03	e.25	e.05	e.02	.02	.02	.01	.03	.02	.01	.01	.01
29	.03	e.15	e.04	e.05	---	.01	.01	.02	.01	.01	.01	.01
30	.03	e.08	e.04	e.06	---	.01	.01	.02	.01	.01	.01	.01
31	.04	---	e.04	e.06	---	.01	---	.01	---	.01	.01	---
TOTAL	0.77	12.79	1.26	1.14	0.63	0.54	0.34	0.51	0.42	0.30	0.31	0.26
MEAN	.025	.43	.041	.037	.022	.017	.011	.016	.014	.010	.010	.009
MAX	.09	9.9	.05	.06	.05	.11	.02	.03	.02	.01	.01	.01
MIN	.01	.02	.03	.01	.02	.01	.01	.01	.01	.00	.01	.00
AC-FT	1.5	25	2.5	2.3	1.2	1.1	.7	1.0	.8	.6	.6	.5
CFSM	.05	.87	.08	.08	.05	.04	.02	.03	.03	.02	.02	.02
IN.	.06	.97	.10	.09	.05	.04	.03	.04	.03	.02	.02	.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1994, BY WATER YEAR (WY)

MEAN	.63	.94	.072	.070	.068	.064	.075	.44	.17	.050	.066	1.10
MAX	3.09	4.22	.30	.35	.38	.31	.34	2.06	.89	.18	.23	8.91
(WY)	1986	1988	1993	1992	1992	1987	1986	1987	1987	1988	1988	1989
MIN	.025	.016	.010	.016	.009	.016	.011	.016	.014	.010	.010	.009
(WY)	1994	1990	1990	1986	1986	1993	1994	1989	1994	1994	1994	1994

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1963 - 1994

ANNUAL TOTAL	33.96	19.27	
ANNUAL MEAN	.093	.053	.31
HIGHEST ANNUAL MEAN			.77
LOWEST ANNUAL MEAN			.026
HIGHEST DAILY MEAN	9.9	Nov 26	169
LOWEST DAILY MEAN	.01	Jan 24	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Feb 6	.00
INSTANTANEOUS PEAK FLOW			2.2
INSTANTANEOUS PEAK STAGE			1.42
INSTANTANEOUS LOW FLOW			.00
ANNUAL RUNOFF (AC-FT)	67	38	203
ANNUAL RUNOFF (CFSM)	.19	.11	.57
ANNUAL RUNOFF (INCHES)	2.58	1.46	7.76
10 PERCENT EXCEEDS	.05	.05	.12
50 PERCENT EXCEEDS	.02	.02	.03
90 PERCENT EXCEEDS	.01	.01	.01

e Estimated

ST. THOMAS, U.S. VIRGIN ISLANDS

483

50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI

LOCATION.--Lat 18°19'55", long 64°53'20", Hydrologic Unit 21020001, on left bank at Mount Zion, 0.6 mi (0.9 km) east southeast from Donoe School, 0.5 mi (0.8 km) northwest from Mariendal, and 0.4 mi (0.6 km) southeast from conjunction of roads 38 and 32.

DRAINAGE AREA.--2.33 mi² (6.03 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1969, October 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft (36 m), from topographic map. Datum of gage for period of October 1992 to current year is 1.62 ft (0.49 m), higher than previous record.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.0	.28	.40	.16	.22	3.3	.11	.19	.13	.15	.22	.21
2	e.43	.15	.29	.06	.11	.87	.07	.33	.17	.20	.20	.16
3	e.33	.13	.23	.05	.07	.41	.10	.19	.05	.11	.22	.17
4	e.21	.11	.47	.04	.08	.14	.22	.18	.05	.10	.26	.21
5	.21	.13	e.25	.45	.09	.09	.31	.19	.07	.07	.28	.20
6	.24	.13	.17	.43	.09	.14	.67	.23	.08	.15	.28	.25
7	.14	.11	.18	.09	.10	.17	.47	.39	.08	.12	.31	.39
8	.14	.13	.21	.08	.09	.12	.43	.13	.06	.06	.30	.17
9	.15	.20	.27	.10	.07	.07	.26	.15	.10	.04	.39	.11
10	.20	.11	e.16	.07	.08	.12	2.4	.10	.21	.07	.11	.70
11	.21	.14	e.13	.11	.09	.21	.72	.08	.07	.10	.17	.48
12	.15	.14	.17	.10	.13	.24	.62	.14	.15	.05	.19	.18
13	.13	.14	.18	.06	.16	.29	.30	.90	.22	.06	.18	.23
14	.13	.73	.18	.04	.13	.25	.66	.31	.21	.06	.21	.15
15	.13	1.3	.17	.18	.14	.23	.68	.31	.32	.06	.28	.17
16	.13	1.6	.15	.09	.13	.16	.31	.29	.24	.07	.27	.13
17	.14	1.7	.18	.17	.14	.09	.53	.22	.19	.10	.20	.14
18	.15	.59	.16	.08	.28	.08	.41	.28	.28	.12	.61	.48
19	.14	.39	.69	.13	.18	.11	.22	.21	.14	.09	.23	.65
20	.15	.37	1.2	e.67	.10	.17	.23	.08	.20	.19	.20	.24
21	.19	.20	.24	.16	.14	.18	.27	.10	.27	.19	.21	.17
22	.13	.20	.12	.13	.10	.15	.23	.09	.28	.21	.25	.24
23	3.0	.17	.08	.17	.13	.10	.32	.11	.22	.16	.18	.32
24	.46	.40	.08	.15	.13	.19	.28	.14	.30	.14	.20	.22
25	.28	1.1	.17	.09	.15	.17	.20	.15	.28	.31	.22	.25
26	.17	81	.10	.09	.21	.12	.17	.10	.27	.30	.20	.20
27	.26	e7.4	.23	.08	.20	.16	.14	.10	.08	.29	.22	.17
28	.14	2.0	.08	.09	.22	.13	.12	.11	.10	.34	.22	.18
29	.25	1.2	.07	.23	---	.16	.11	.15	.32	.31	.25	.13
30	.41	.65	.07	.26	---	.12	.10	.26	.18	.26	.30	.16
31	.40	---	.06	.24	---	.10	---	.13	---	.29	.22	---
TOTAL	10.20	102.90	7.14	4.85	3.76	8.84	11.66	6.34	5.32	4.77	7.58	7.46
MEAN	.33	3.43	.23	.16	.13	.29	.39	.20	.18	.15	.24	.25
MAX	3.0	81	1.2	.67	.28	3.3	2.4	.90	.32	.34	.61	.70
MIN	.13	.11	.06	.04	.07	.07	.07	.08	.05	.04	.11	.11
AC-FT	20	204	14	9.6	7.5	18	23	13	11	9.5	15	15
CFSM	.14	1.47	.10	.07	.06	.12	.17	.09	.08	.07	.10	.11
IN.	.16	1.64	.11	.08	.06	.14	.19	.10	.08	.08	.12	.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1994, BY WATER YEAR (WY)

	MEAN	.31	1.31	.80	.11	.06	.16	.19	.99	.44	.10	.10	.45
MAX	2.04	6.49	4.79	.40	.18	.71	.92	6.92	3.16	.47	.24	3.05	
(WY)	1993	1993	1993	1993	1993	1969	1993	1969	1993	1993	1994	1993	
MIN	.000	.06	.00	.000	.000	.000	.000	.000	.000	.000	.000	.000	
(WY)	1969	1968	1965	1968	1965	1965	1965	1968	1968	1965	1965	1965	

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1963 - 1994

ANNUAL TOTAL	400.44	180.82	
ANNUAL MEAN	1.10	.50	0.42
HIGHEST ANNUAL MEAN			1.88
LOWEST ANNUAL MEAN			.002
HIGHEST DAILY MEAN	81	81	168
LOWEST DAILY MEAN	.06	.04	.00
ANNUAL SEVEN-DAY MINIMUM	.09	.06	.00
INSTANTANEOUS PEAK FLOW		1770	5415
INSTANTANEOUS PEAK STAGE		5.87	5.00
ANNUAL RUNOFF (AC-FT)	794	359	304
ANNUAL RUNOFF (CFSM)	.47	.21	.18
ANNUAL RUNOFF (INCHES)	6.39	2.89	2.44
10 PERCENT EXCEEDS	.80	.43	1.2
50 PERCENT EXCEEDS	.23	.18	.22
90 PERCENT EXCEEDS	.12	.08	.10

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHUR BAY GUT AT LAMESHUR, ST. JOHN, VI

LOCATION.--Lat 18°19'35", long 64°43'20", Hydrologic Unit 21020001, on left bank, 0.7 mi (1.1 km), northwest from Mina Hill top, 1.2 mi (1.9 km), west southwest from Calabash Boom Cemetery, 0.8 mi (1.3 km), southeast from top of Bordeaux Mtn.

DRAINAGE AREA.--0.38 mi² (0.98 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

[illegible]

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

[illegible]

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1992 - 1994

ANNUAL TOTAL	0.14								
ANNUAL MEAN	.000							.007	
HIGHEST ANNUAL MEAN								.014	1993
LOWEST ANNUAL MEAN								.000	1994
HIGHEST DAILY MEAN	.14	Jan	1					1.4	Nov 29 1992
LOWEST DAILY MEAN	.00	Jan	2		.00	Oct	1	.00	Aug 19 1992
ANNUAL SEVEN-DAY MINIMUM	.00	Jan	2		.00	Oct	1	.00	Aug 19 1992
INSTANTANEOUS PEAK FLOW								4.2	Nov 27 1992
INSTANTANEOUS PEAK STAGE								2.23	Nov 27 1992
INSTANTANEOUS LOW FLOW					.00	Oct	1	.00	Oct 1 1992
ANNUAL RUNOFF (AC-FT)	.3							4.9	
ANNUAL RUNOFF (CFSM)	.001							.018	
ANNUAL RUNOFF (INCHES)	.01							.24	
10 PERCENT EXCEEDS	.00				.00			.00	
50 PERCENT EXCEEDS	.00				.00			.00	
90 PERCENT EXCEEDS	.00				.00			.00	

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHURE BAY GUT AT LAMESHURE ST. JOHN, VI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water year 1993.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1992 to September 1993.

INSTRUMENTATION.-- DH-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 30 mg/L Dec. 30, 1992; Minimum daily mean, 0 mg/L several days during year.

SEDIMENT LOADS: Maximum daily mean, 1.4 tons (1.3 tonnes) Oct. 29, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days during the year.

EXTREMES FOR CURRENT YEARS 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 30 mg/L Dec. 30, 1992; Minimum daily mean, 0 mg/L several days in 1994.

SEDIMENT LOADS: Maximum daily mean, 1.4 tons (1.3 tonnes) Oct. 29, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days in 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	e.00	0	.00	.00	0	.00	.16	1	<.01
2	e.00	0	.00	.00	0	.00	.00	0	.00
3	e.00	0	.00	.00	0	.00	.00	0	.00
4	e.00	0	.00	.00	0	.00	.00	0	.00
5	e.00	0	.00	.00	0	.00	.00	0	.00
6	e.00	0	.00	.00	0	.00	.00	0	.00
7	e.00	0	.00	.00	0	.00	.00	0	.00
8	e.00	0	.00	.00	0	.00	.00	0	.00
9	e.00	0	.00	.00	0	.00	.00	0	.00
10	e.00	0	.00	.00	0	.00	.00	0	.00
11	e.00	0	.00	.00	0	.00	.00	0	.00
12	e.00	0	.00	.00	0	.00	.00	0	.00
13	e.00	0	.00	.00	0	.00	.00	0	.00
14	e.00	0	.00	.00	0	.00	.00	0	.00
15	e.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.19	5	.02	.00	0	.00
28	.00	0	.00	e1.3	30	e.10	.00	0	.00
29	.00	0	.00	e1.4	5	e.02	.00	0	.00
30	.00	0	.00	e.90	5	.00	.51	35	.06
31	.00	0	.00	---	---	---	.37	27	.03
TOTAL	0.00	---	0.00	3.79	---	0.14	1.04	---	0.09

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHURE BAY GUT AT LAMESHURE, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.14	10	.01	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	---	---	---	.00	0	.00
30	.00	0	.00	---	---	---	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	0.14	---	0.01	0.00	---	0.00	0.00	---	0.00

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHURE BAY GUT AT LAMESHURE, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
	APRIL			MAY			JUNE		
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	---	---	---	.00	0	.00	---	---	---
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHURE BAY GUT AT LAMESHURE, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	.00	0	.00	.00	0	.00	---	---	---
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00
YEAR	4.97		0.24						

• Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHURE BAY GUT AT LAMESHURE, ST. JOHN, VI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1992					
28...	0858	0.2	184	0.10	97.4
28...	1109	1.8	102	0.49	96.5
28...	1304	1.3	66	0.23	94.4
28...	1809	1.4	89	0.34	98.8
DEC					
30...	1202	1.0	161	0.43	93.8
30...	1400	1.1	59	0.17	100.0

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI

LOCATION.--Lat 18°19'42", long 64°45'52", Hydrologic Unit 21020001, 0.55 mi (0.88 km) east from Gift Hill top, 1.95 mi (3.13 km) east southeast from Cruz Bay school, 1.00 mi (1.61 km) from Camelberg Peak.

DRAINAGE AREA.--1.48 mi² (3.80 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft (3.0 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.00	e.22	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
2	.17	.00	e.20	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
3	.14	.00	e.18	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
4	.11	.00	e.16	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
5	.01	.00	e.14	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
6	.00	.00	e.13	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
7	.00	.00	e.12	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
8	.00	.00	e.11	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
9	.00	.00	e.08	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
10	.00	.00	e.03	e.00	e.00	e.00	e.01	.00	.00	.00	.00	.00
11	.00	.00	e.01	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
12	.00	.00	e.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
13	.00	e.00	e.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00
14	.00	e.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
15	.00	e.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
16	.00	e.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
17	.00	e.19	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
18	.00	e.24	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
19	.00	e.20	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
20	.00	.16	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
21	.00	.13	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
22	.00	.08	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
23	.00	.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
24	.00	.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
25	.00	.00	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
26	.00	9.3	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
27	.00	e1.3	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
28	.00	e.51	e.00	e.00	e.00	e.00	.00	.00	.00	.00	.00	.00
29	.00	e.35	e.00	e.00	---	e.00	.00	.00	.00	.00	.00	.00
30	.00	e.28	e.00	e.00	---	e.00	.00	.00	.00	.00	.00	.00
31	.00	---	e.00	e.00	---	e.00	---	.00	---	.00	.00	---
TOTAL	0.52	12.74	1.38	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
MEAN	.017	.42	.045	.000	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.17	9.3	.22	.00	.00	.00	.01	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	1.0	25	2.7	.00	.00	.00	.02	.00	.00	.00	.00	.00
CFSM	.01	.29	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00
IN.	.01	.32	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1994, BY WATER YEAR (WY)

	MEAN	.035	.59	.19	.074	.011	.000	.000	.41	.033	.000	.000	.000
MAX	.052	.75	.34	.15	.021	.000	.000	.000	1.19	.077	.000	.000	.000
(WY)	1993	1993	1993	1993	1993	1993	1993	1994	1992	1993	1992	1992	1992
MIN	.017	.42	.045	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1994	1994	1994	1994	1994	1994	1993	1993	1994	1994	1992	1992	1992

SUMMARY STATISTICS

FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1992 - 1994

ANNUAL TOTAL	22.78	14.65	
ANNUAL MEAN	.062	.040	.079
HIGHEST ANNUAL MEAN			.12
LOWEST ANNUAL MEAN			.040
HIGHEST DAILY MEAN	9.3 Nov 26	9.3 Nov 26	19 May 24 1992
LOWEST DAILY MEAN	.00 Jan 21	.00 Oct 6	.00 Apr 14 1992
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 21	.00 Oct 6	.00 Apr 14 1992
INSTANTANEOUS PEAK FLOW		74 Nov 26	265 Nov 27 1992
INSTANTANEOUS PEAK STAGE		2.31 Nov 26	3.57 Nov 27 1992
INSTANTANEOUS LOW FLOW		.00 Oct 1	.00 Apr 14 1992
ANNUAL RUNOFF (AC-FT)	45	29	57
ANNUAL RUNOFF (CFSM)	.042	.027	.053
ANNUAL RUNOFF (INCHES)	.57	.37	.72
10 PERCENT EXCEEDS	.14	.00	.13
50 PERCENT EXCEEDS	.00	.00	.00
90 PERCENT EXCEEDS	.00	.00	.00

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY ST. JOHN, VI--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water year 1993.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1992 to September 1993.

INSTRUMENTATION.-- DH-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 136 mg/L Nov. 27, 1992; Minimum daily mean, 0 mg/L several days during year.

SEDIMENT LOADS: Maximum daily mean, 50 tons (45 tonnes) Nov. 27, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days during the year.

EXTREMES FOR CURRENT YEARS 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 136 mg/L Nov. 27, 1992; Minimum daily mean, 0 mg/L several days in 1994.

SEDIMENT LOADS: Maximum daily mean, 50 tons (45 tonnes) Nov. 29, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days in 1994.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
OCTOBER			NOVEMBER			DECEMBER			
1	.00	0	.00	.00	0	.00	.17	1	<.01
2	.00	0	.00	.00	0	.00	.14	1	<.01
3	.00	0	.00	.00	0	.00	.12	1	<.01
4	.00	0	.00	.07	0	.00	.12	1	<.01
5	.00	0	.00	.17	7	<.01	.13	1	<.01
6	.00	0	.00	.19	9	<.01	.12	1	<.01
7	.00	0	.00	.21	10	<.01	.11	1	<.01
8	.00	0	.00	e.85	26	e.05	.08	1	<.01
9	.00	0	.00	e.21	8	e.01	.06	1	<.01
10	.00	0	.00	e.21	7	e.01	.03	1	<.01
11	.00	0	.00	e.21	7	e.01	.00	0	.00
12	.00	0	.00	e.21	7	e.01	.00	0	.00
13	.00	0	.00	e.21	7	e.01	.00	0	.00
14	.00	0	.00	e.21	7	e.01	.00	0	.00
15	.00	0	.00	e.21	7	e.01	.00	0	.00
16	.15	5	<.01	e.21	24	e.01	.00	0	.00
17	.16	8	<.01	.18	25	.01	.00	0	.00
18	.17	7	<.01	.17	8	<.01	.00	0	.00
19	.17	7	<.01	.17	6	<.01	.00	0	.00
20	.16	6	<.01	.14	6	<.01	.00	0	.00
21	.15	6	<.01	.13	6	<.01	.00	0	.00
22	.13	6	<.01	.13	6	<.01	.00	0	.00
23	.09	5	<.01	.13	5	<.01	.00	0	.00
24	.06	5	<.01	.11	5	<.01	.00	0	.00
25	.10	5	<.01	.10	5	<.01	.00	0	.00
26	.12	6	<.01	.09	5	<.01	.00	0	.00
27	.11	0	.00	13	136	50	.00	0	.00
28	.05	0	.00	4.3	80	1.7	.07	4	.00
29	.00	0	.00	.47	9	.02	.06	4	.00
30	.00	0	.00	.26	2	<.01	8.7	95	4.1
31	.00	0	.00	---	---	---	.68	24	.05
TOTAL	1.62	---	0.00	22.55	---	51.79	10.59	---	4.15

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JANUARY			FEBRUARY			MARCH			
1	.37	15	.02	.00	0	.00	.00	0	.00
2	.26	11	.01	.00	0	.00	.00	0	.00
3	.22	9	<.01	.13	0	.00	.00	0	.00
4	.23	8	<.01	.16	7	<.01	.00	0	.00
5	.30	15	<.01	.13	6	<.01	.00	0	.00
6	.50	16	.01	.09	5	<.01	.00	0	.00
7	.44	15	.01	.07	4	<.01	.00	0	.00
8	.31	13	.01	.02	0	<.01	.00	0	.00
9	.25	11	<.01	.00	0	.00	.00	0	.00
10	.23	11	<.01	.00	0	.00	.00	0	.00
11	.21	10	<.01	.00	0	.00	.00	0	.00
12	.22	10	<.01	.00	0	.00	.00	0	.00
13	.20	9	<.01	.00	0	.00	.00	0	.00
14	.19	8	<.01	.00	0	.00	.00	0	.00
15	.17	7	<.01	.00	0	.00	.00	0	.00
16	.14	6	<.01	.00	0	.00	.00	0	.00
17	.13	5	<.01	.00	0	.00	.00	0	.00
18	.11	4	<.01	.00	0	.00	.00	0	.00
19	.07	3	<.01	.00	0	.00	.00	0	.00
20	.02	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	---	---	---	.00	0	.00
30	.00	0	.00	---	---	---	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	4.57	---	0.06	0.60	---	0.00	0.00	---	0.00

ST. JOHN, U.S. VIRGIN ISLANDS

493

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
APRIL			MAY			JUNE			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.16	0	.00	.00	0	.00
11	.00	0	.00	.19	9	<.01	.00	0	.00
12	.00	0	.00	.14	6	<.01	.00	0	.00
13	.00	0	.00	.13	5	<.01	.00	0	.00
14	.00	0	.00	.06	0	<.01	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	1.5	49	.44
21	.00	0	.00	.00	0	.00	.31	13	<.01
22	.00	0	.00	.00	0	.00	.20	8	<.01
23	.00	0	.00	.00	0	.00	.14	6	<.01
24	.00	0	.00	.00	0	.00	.10	5	<.01
25	.00	0	.00	.00	0	.00	.05	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	---	---	---	.00	0	.00	---	---	---
TOTAL	0.00	---	0.00	0.67	---	0.00	2.30	---	0.44

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
JULY			AUGUST			SEPTEMBER			
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	.00	0	.00	.00	0	.00	---	---	---
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00
YEAR	42.90		56.44						

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. FALL DIAM. FINER THAN .002 MM	SED. SUSP. FALL DIAM. FINER THAN .004 MM	SED. SUSP. FALL DIAM. FINER THAN .008 MM
NOV 1992							
27...	1935	265	3340	234	49	52	55
DATE							
	SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM	SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM
NOV 1992							
27...	63	71	78	88.5	93	95.8	97.8

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDE (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY)	SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM
NOV 1992					
28...	1335	1.8	343	1.67	95.3
28...	1406	1.6	75	0.32	97.6
28...	1615	1.3	75	0.26	96.6
DEC					
30...	0303	11.3	1150	35.1	96
30...	1046	4.6	95	1.18	96.7
JUN 1993					
20...	0646	11	127	3.77	97.6

ST. JOHN, U.S. VIRGIN ISLANDS

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI

LOCATION.--Lat 18°19'55", long 64°46'50", Hydrologic Unit 21020001, 600 ft (183 m) southeast of Bethany Church, and 1.0 mi (1.6 km) east of Government House at Cruz Bay.

DRAINAGE AREA.--0.37 mi² (0.96 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to October 1967, September 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 260 ft (79 m), from topographic map. Prior to September 1982, at datum 1.00 ft (0.30 m) higher.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.30	.00	.00	.00	.00	.00	.00	.00	.00	.00
2	.00	.00	.27	.00	.00	.00	.00	.00	.00	.00	.00	.00
3	.00	.00	.26	.00	.00	.00	.00	.00	.00	.00	.00	.00
4	.00	.00	.26	.00	.00	.00	.00	.00	.00	.00	.00	.00
5	.00	.00	.25	.00	.00	.00	.00	.00	.00	.00	.00	.00
6	.00	.00	.23	.00	.00	.00	.00	.00	.00	.00	.00	.00
7	.00	.00	.21	.00	.00	.00	.00	.00	.00	.00	.00	.00
8	.00	.00	.20	.00	.00	.00	.00	.00	.00	.00	.00	.00
9	.00	.00	.19	.00	.00	.00	.00	.00	.00	.00	.00	.00
10	.00	.00	.07	.00	.00	.00	.07	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
16	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
17	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
18	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
19	.00	.02	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
20	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
26	.00	3.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
27	.00	1.7	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
28	.00	.60	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
29	.00	.46	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
30	.00	.37	.00	.00	---	.00	.00	.00	.00	.00	.00	.00
31	.00	---	.00	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	0.00	6.92	2.24	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
MEAN	.0000	.23	.072	.0000	.0000	.0000	.002	.0000	.0000	.0000	.0000	.0000
MAX	.00	3.7	.30	.00	.00	.00	.07	.00	.00	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	.00	14	4.4	.00	.00	.00	.1	.00	.00	.00	.00	.00
CFSM	.00	.62	.20	.00	.00	.00	.01	.00	.00	.00	.00	.00
IN.	.00	.70	.23	.00	.00	.00	.01	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1994, BY WATER YEAR (WY)

	MEAN	.057	.39	.031	.013	.005	.004	.021	.12	.011	.008	.010	.28
MAX	.23	2.52	.11	.044	.017	.009	.009	.17	.89	.031	.038	.026	2.35
(WY)	1986	1985	1989	1989	1989	1985	1986	1986	1987	1990	1988	1989	
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1992	1992	1987	1992	1992	1986	1992	1994	1991	1987	1991	1991	

SUMMARY STATISTICS	FOR 1993 CALENDAR YEAR	FOR 1994 WATER YEAR	WATER YEARS 1963 - 1994
ANNUAL TOTAL	10.28	9.23	
ANNUAL MEAN	.028	.025	.078
HIGHEST ANNUAL MEAN			.35
LOWEST ANNUAL MEAN			.00
HIGHEST DAILY MEAN	3.7 Nov 26	3.7 Nov 26	43 Nov 7 1984
LOWEST DAILY MEAN	.00 Jan 2	.00 Oct 1	.00 Oct 25 1983
ANNUAL SEVEN-DAY MINIMUM	.00 Jan 7	.00 Oct 1	.00 Feb 16 1984
INSTANTANEOUS PEAK FLOW		15 Nov 26	946 Apr 18 1983
INSTANTANEOUS PEAK STAGE		2.11 Nov 26	5.33 Apr 18 1983
ANNUAL RUNOFF (AC-FT)	20	18	57
ANNUAL RUNOFF (CFSM)	.076	.068	.21
ANNUAL RUNOFF (INCHES)	1.03	.93	2.87
10 PERCENT EXCEEDS	.01	.00	.04
50 PERCENT EXCEEDS	.00	.00	.01
90 PERCENT EXCEEDS	.00	.00	.00

ST. CROIX, U.S. VIRGIN ISLANDS

50333700 RIVER GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'16", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguilla ruins.

DRAINAGE AREA.--5.89 mi² (15.26 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--May 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 15.34 ft (4.676 m), May 25, 1992; minimum recorded, 10.46 ft (3.188 m), many days, but could be lower.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 12.13 ft (3.697 m), Nov 26; minimum recorded, 10.46 ft (3.188 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47
2	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47
3	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47
4	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47
5	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47
6	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47
7	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
8	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
9	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
10	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
11	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
12	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.46
13	10.46	10.46	10.49	10.46	10.46	10.46	10.45	10.46	10.47	10.47	10.46	10.46
14	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.47	10.46	10.46
15	10.46	10.48	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.50
16	10.46	10.47	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47
17	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.47	10.51	10.47
18	10.46	10.46	10.48	10.46	10.46	10.46	10.45	10.46	10.47	10.47	10.47	10.47
19	10.46	10.46	10.47	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.47
20	10.46	10.46	10.46	10.48	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.48
21	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.47
22	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.46	10.46	10.47	10.47
23	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.46	10.46	10.47	10.47
24	10.48	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.49	10.47
25	10.46	10.56	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.47
26	10.46	10.65	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.47
27	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.46	10.47	10.46	10.47	10.47
28	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.46	10.47	10.46	10.47	10.47
29	10.46	10.46	10.46	10.46	---	10.46	10.45	10.46	10.47	10.46	10.47	10.47
30	10.46	10.46	10.46	10.46	---	10.46	10.45	10.46	10.47	10.47	10.47	10.47
31	10.46	---	10.46	10.46	---	10.46	---	10.46	---	10.48	10.47	---
MEAN	10.46	10.47	10.46	10.46	10.46	10.46	10.45	10.46	10.46	10.47	10.47	10.47
MAX	10.48	10.65	10.49	10.48	10.46	10.46	10.46	10.46	10.47	10.48	10.51	10.50
MIN	10.46	10.46	10.46	10.46	10.46	10.46	10.45	10.45	10.46	10.46	10.46	10.46

50334500 BETHLEHEM GUT AT HWY 66 AT FAIRPLAINS, ST.CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'15", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguilla ruins.

DRAINAGE AREA.--4.11 mi² (10.64 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--1963 to 1969 (monthly measurements only), May 1990 to current year. Prior to 1990 published as Bethlehem Gut at upper Bethlehem.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 11.45 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 19.28 ft (5.876 m), May 25, 1992; minimum, 11.45 ft (3.490 m), many days, but could be lower.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 15.13 ft (4.612 m), Nov 26; minimum, 11.45 ft (3.490 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.45	11.45	11.88	11.45	11.45	11.45	11.45	11.44	11.45	11.45	11.46	11.46
2	11.45	11.45	11.77	11.45	11.45	11.45	11.45	11.44	11.45	11.45	11.46	11.46
3	11.45	11.45	11.65	11.45	11.45	11.45	11.45	11.44	11.45	11.46	11.46	11.46
4	11.45	11.45	11.55	11.45	11.45	11.45	11.45	11.44	11.45	11.46	11.46	11.46
5	11.45	11.45	11.47	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
6	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
7	11.45	11.44	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
8	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
9	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
10	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
11	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
12	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
13	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
14	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
15	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
16	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
17	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
18	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
19	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
20	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
21	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
22	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
23	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
24	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
25	11.45	11.52	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.45	11.45
26	11.45	13.22	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
27	11.45	12.54	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
28	11.45	12.28	11.45	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.45
29	11.45	12.13	11.45	11.45	---	11.45	11.45	11.45	11.45	11.46	11.46	11.45
30	11.45	12.01	11.45	11.45	---	11.45	11.45	11.45	11.45	11.46	11.46	11.46
31	11.45	---	11.45	11.45	---	11.45	---	11.45	---	11.46	11.46	---
MEAN	11.45	11.62	11.48	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
MAX	11.45	13.22	11.88	11.45	11.45	11.45	11.45	11.45	11.45	11.46	11.46	11.46
MIN	11.45	11.44	11.45	11.45	11.45	11.45	11.45	11.44	11.45	11.45	11.45	11.45

ST. CROIX, U.S. VIRGIN ISLANDS

50345000 JOLLY HILL GUT AT JOLLY HILL, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°51'47", Hydrologic Unit 21020002, on Mahogany Road at Jolly Hill, 1.8 mi (2.9 km) northeast of Frederiksted.

DRAINAGE AREA.--2.10 mi² (5.44 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1968. Monthly measurements, 1962-69. October 1982 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested concrete control. Elevation of gage is 140 ft (43 m), from topographic map.

REMARKS.--Records poor. Low-water diversions upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.14	.10	.11	.00	.00	.00	.00	.00	.00	.00	.00
2	.02	.14	.08	.11	.00	.00	.00	.00	.00	.00	.00	.00
3	.03	.15	.08	.11	.00	.00	.00	.00	.00	.00	.00	.00
4	.05	.14	.08	.11	.00	.00	.00	.00	.00	.00	.00	.00
5	.05	.13	.09	.10	.00	.00	.00	.00	.00	.00	.00	.00
6	.06	.12	.09	.09	.00	.00	.00	.00	.00	.00	.00	.00
7	.06	.13	.09	.09	.00	.00	.00	.00	.00	.00	.00	.00
8	.05	.12	.09	.09	.00	.00	.00	.00	.00	.00	.00	.00
9	.04	.16	.09	.09	.00	.00	.00	.00	.00	.00	.00	.00
10	.05	.13	.09	.11	.00	.00	.00	.00	.00	.00	.00	.00
11	.06	.12	.09	.14	.00	.00	.00	.00	.00	.00	.00	.00
12	.05	.12	.09	.12	.00	.00	.00	.00	.00	.00	.00	.00
13	.06	.10	.13	.10	.00	.00	.00	.00	.00	.00	.00	.00
14	.06	.09	.12	.06	.00	.00	.00	.00	.00	.00	.00	.00
15	.06	.12	.11	.08	.00	.00	.00	.00	.00	.00	.00	.00
16	.06	.26	.10	.14	.00	.00	.00	.00	.00	.00	.00	.00
17	.07	.45	.12	.13	.00	.00	.00	.00	.00	.00	.00	.00
18	.07	.40	.14	.10	.00	.00	.00	.00	.00	.00	.00	.00
19	.07	.37	.14	.15	e.00	.00	.00	.00	.00	.00	.00	.00
20	.08	.34	.13	.13	e.00	.00	.00	.00	.00	.00	.00	.00
21	.08	.30	.13	.15	e.00	.00	.00	.00	.00	.00	.00	.00
22	.08	.03	.13	.12	.00	e.00	.00	.00	.00	.00	.00	.00
23	.08	.01	.13	.09	.00	e.00	.00	.00	.00	.00	.00	.00
24	.09	.03	.13	.07	.00	e.00	.00	.00	.00	.00	.00	.00
25	.11	.13	.13	.05	.00	e.00	.00	.00	.00	.00	.00	.00
26	.12	.21	.13	.08	.00	e.00	.00	.00	.00	.00	.00	.00
27	.12	.13	.13	.04	.00	e.00	.00	.00	.00	.00	.00	.00
28	.12	.10	.13	.06	.00	e.00	.00	.00	.00	.00	.00	.00
29	.11	.10	.12	.02	---	.00	.00	.00	.00	.00	.00	.00
30	.12	.10	.11	.02	---	.00	.00	.00	.00	.00	.00	.00
31	.13	---	.11	.00	---	.00	---	.00	---	.00	.00	---
TOTAL	2.24	4.87	3.43	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEAN	.072	.16	.11	.092	.000	.000	.000	.000	.000	.000	.000	.000
MAX	.13	.45	.14	.15	.00	.00	.00	.00	.00	.00	.00	.00
MIN	.02	.01	.08	.00	.00	.00	.00	.00	.00	.00	.00	.00
AC-FT	4.4	9.7	6.8	5.7	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.03	.08	.05	.04	.00	.00	.00	.00	.00	.00	.00	.00
IN.	.04	.09	.06	.05	.00	.00	.00	.00	.00	.00	.00	.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1994, BY WATER YEAR (WY)

MEAN	.55	.80	.56	.31	.20	.097	.075	.11	.22	.093	.039	.28
MAX	2.14	2.33	2.34	.88	.55	.34	.23	.46	1.43	.52	.18	2.15
(WY)	1991	1988	1988	1988	1988	1990	1990	1992	1987	1987	1987	1989
MIN	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
(WY)	1987	1992	1992	1992	1989	1989	1989	1989	1989	1989	1989	1991

SUMMARY STATISTICS

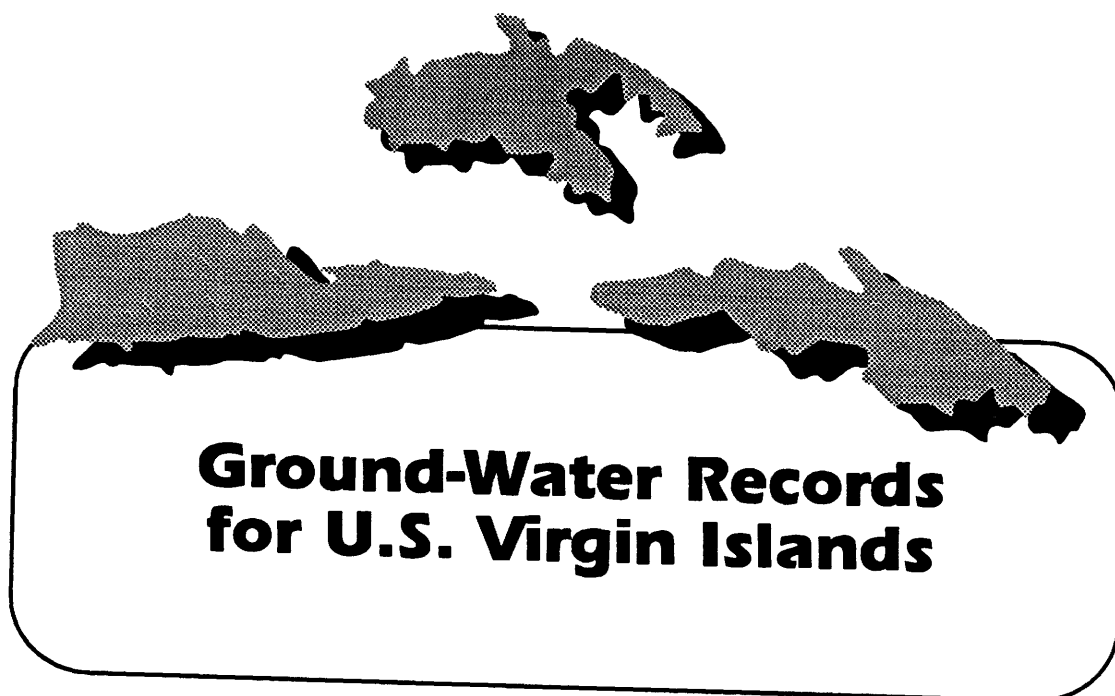
FOR 1993 CALENDAR YEAR

FOR 1994 WATER YEAR

WATER YEARS 1964 - 1994

ANNUAL TOTAL	50.24	13.40	
ANNUAL MEAN	.14	.037	.18
HIGHEST ANNUAL MEAN			.58
LOWEST ANNUAL MEAN			.00
HIGHEST DAILY MEAN	.98	Jul 23	22
LOWEST DAILY MEAN	.01	Apr 28	.00
ANNUAL SEVEN-DAY MINIMUM	.01	Sep 18	.00
INSTANTANEOUS PEAK FLOW		2.4	491
INSTANTANEOUS PEAK STAGE		1.15	4.33
ANNUAL RUNOFF (AC-FT)	100	27	130
ANNUAL RUNOFF (CFSM)	.066	.017	.02
ANNUAL RUNOFF (INCHES)	.89	.24	1.16
10 PERCENT EXCEEDS	.41	.12	.66
50 PERCENT EXCEEDS	.08	.00	.04
90 PERCENT EXCEEDS	.03	.00	.00

e Estimated



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.90 mi southeast of the Experimental Station, 0.6 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: USGS-10, Fairplains 2 (FP2).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at concrete base wall, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Nearby pumping well.

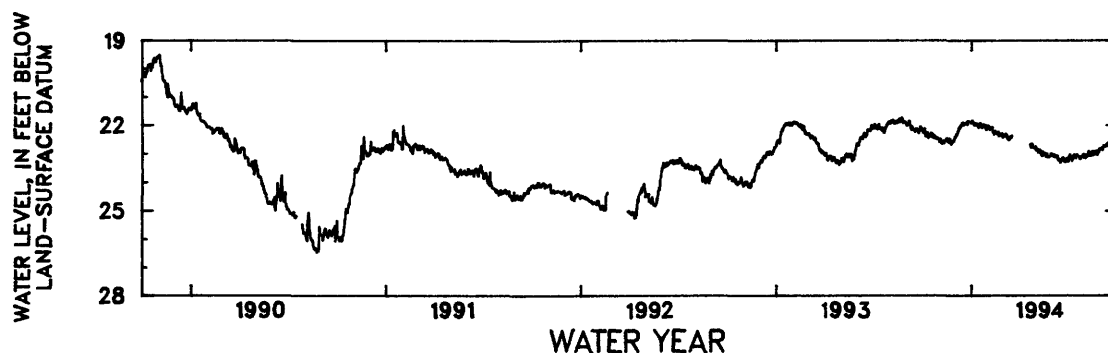
PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.45 ft (5.93 m) below land-surface datum, Nov. 4, 1989; lowest water level recorded, 26.46 ft (8.06 m) below land-surface datum, Aug. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.18	22.51	22.41	21.85	22.01	22.43	---	22.74	23.06	23.27	23.03	22.78
2	22.26	22.59	22.42	21.83	22.03	22.36	---	22.88	23.03	23.19	23.14	22.81
3	22.15	22.47	22.32	21.88	22.07	22.34	---	22.83	23.05	23.08	23.05	22.87
4	22.16	22.52	22.35	21.91	22.15	22.38	---	22.87	23.10	23.03	23.03	22.76
5	22.12	22.60	22.30	21.97	22.12	22.38	---	22.85	23.03	23.15	23.08	22.71
6	22.26	22.64	22.23	21.99	22.08	22.30	---	22.96	23.10	23.17	23.04	22.74
7	22.39	22.65	22.18	21.97	22.09	22.33	---	22.92	23.10	23.10	22.95	22.73
8	22.32	22.61	22.09	21.94	22.11	22.34	---	22.85	23.09	23.24	22.91	22.70
9	22.32	22.56	22.11	21.94	22.07	22.46	---	22.91	23.10	23.17	23.06	22.72
10	22.25	22.62	22.03	22.00	22.24	22.42	---	22.97	23.07	23.07	23.00	22.73
11	22.30	22.55	22.07	21.99	22.23	22.49	---	22.91	23.15	23.07	22.99	22.64
12	22.44	22.55	22.00	21.94	22.31	22.51	---	23.05	23.22	23.03	23.06	22.67
13	22.41	22.55	22.01	21.96	22.22	22.45	---	23.08	23.20	23.12	23.01	22.66
14	22.37	22.50	21.92	22.07	22.19	22.41	---	23.04	23.19	23.07	22.92	22.61
15	22.37	22.47	21.91	22.02	22.25	22.44	---	22.93	23.24	23.14	22.91	22.72
16	22.31	22.45	21.91	21.96	22.26	22.43	---	22.96	23.31	23.08	23.05	22.60
17	22.27	22.57	21.99	21.93	22.26	22.40	---	23.05	23.28	23.03	22.99	22.58
18	22.35	22.49	21.95	21.94	22.30	22.38	---	23.02	23.20	23.05	22.91	22.63
19	22.41	22.58	21.95	21.98	22.28	---	---	22.98	23.17	23.07	23.01	22.65
20	22.29	22.61	21.93	22.08	22.23	---	---	23.11	23.14	23.08	22.98	22.59
21	22.40	22.46	21.93	22.07	22.38	---	22.68	23.06	23.14	23.11	22.98	22.54
22	22.44	22.54	21.91	22.01	22.31	---	22.78	22.99	23.21	23.15	22.97	22.55
23	22.36	22.62	21.88	21.97	22.34	---	22.74	23.04	23.26	23.18	22.89	22.55
24	22.39	22.67	21.96	21.97	22.30	---	22.65	23.12	23.22	23.15	23.04	22.52
25	22.46	22.60	21.88	22.02	22.33	---	22.69	23.10	23.28	23.10	22.92	22.44
26	22.42	22.59	21.86	22.04	22.36	---	22.79	23.10	23.27	23.11	22.95	22.51
27	22.48	22.54	---	21.99	22.28	---	22.79	23.10	23.17	23.10	22.91	22.48
28	22.44	22.55	---	22.15	22.30	---	22.79	23.06	23.24	23.07	22.82	22.48
29	22.46	22.56	21.88	22.13	---	---	22.80	23.01	23.22	23.01	22.82	22.60
30	22.46	22.45	---	22.02	---	---	22.80	22.99	23.14	23.12	22.83	22.58
31	22.49	---	21.91	22.06	---	---	---	23.03	---	23.06	22.81	---
MEAN	22.35	22.56	22.05	21.99	22.22	22.40	22.75	22.98	23.17	23.11	22.97	22.64

WTR YR 1994 MEAN 22.60 HIGHEST 21.83 DEC. 26, 29, 30, 1993 LOWEST 23.31 JUNE 16, 25, 1994



GROUND-WATER LEVELS

503

ST. CROIX, U.S. VIRGIN ISLANDS

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted Plaza, and 0.57 mi southwest of the Experimental Station. Owner: U.S. Virgin Islands Government, Name: Golden Grove - 6 (PW6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 8 in (0.20 m) casing, 4.20 ft (1.28 m) above land-surface datum.

REMARKS.--Recording observation well.

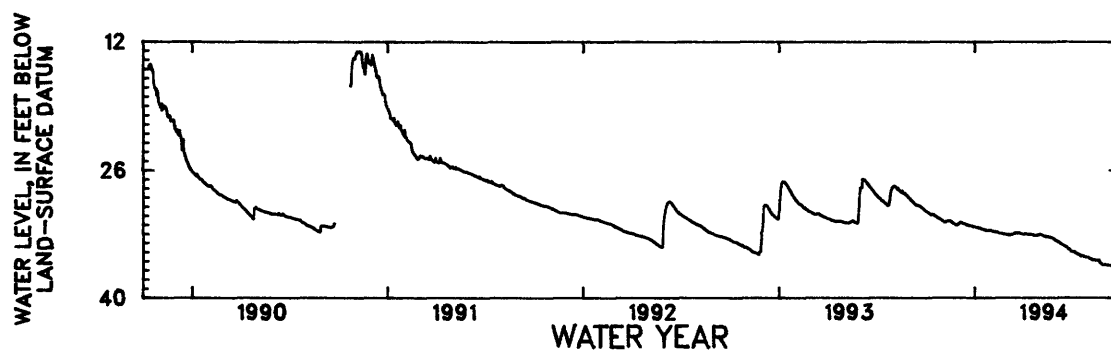
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.99 ft (3.96 m) below land-surface datum, Nov. 10, 1990; lowest water level recorded, 36.76 ft (11.2 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30.43	31.51	31.90	32.21	32.61	33.05	33.02	33.07	33.68	34.93	35.57	36.38
2	30.48	31.55	31.85	32.22	32.63	33.06	33.03	33.06	33.70	34.94	35.61	36.39
3	30.52	31.58	31.80	32.23	32.65	33.07	33.02	33.05	33.79	34.95	35.64	36.39
4	30.55	31.61	31.74	32.25	32.66	33.09	33.01	33.05	33.81	34.96	35.70	36.41
5	30.58	31.65	31.71	32.25	32.69	33.08	33.00	33.06	33.83	34.96	35.72	36.41
6	30.62	31.69	31.70	32.27	32.71	33.09	32.99	33.08	33.89	34.97	35.73	36.41
7	30.66	31.71	31.72	32.29	32.73	33.10	32.99	33.10	33.93	35.03	35.74	36.43
8	30.71	31.67	31.75	32.31	32.74	33.11	33.01	33.14	33.98	35.04	35.81	36.43
9	30.76	31.60	31.79	32.33	32.76	33.09	33.02	33.17	34.03	35.10	35.83	36.44
10	30.80	31.57	31.82	32.34	32.78	33.07	33.03	33.20	34.07	35.14	35.84	36.44
11	30.83	31.56	31.83	32.35	32.79	33.07	33.03	33.22	34.11	35.19	35.84	36.44
12	30.87	31.55	31.84	32.38	32.80	33.04	33.03	33.25	34.13	35.23	35.84	36.44
13	30.90	31.55	31.87	32.40	32.82	---	33.03	33.27	34.15	35.24	35.84	36.48
14	30.86	31.55	31.89	32.42	32.84	---	33.04	33.28	34.18	35.25	35.85	36.53
15	30.86	31.55	31.91	32.44	32.87	---	33.04	33.28	34.24	35.27	35.85	36.54
16	30.90	31.55	31.94	32.46	32.90	---	33.05	33.27	34.28	35.31	35.85	36.56
17	30.94	31.55	31.98	32.47	32.91	32.91	---	33.29	34.31	35.40	35.86	36.57
18	30.99	31.63	32.00	32.49	32.92	32.86	---	33.31	34.33	35.43	35.86	36.59
19	31.02	31.71	32.03	32.52	32.93	32.86	---	33.32	34.36	35.40	35.86	36.62
20	31.06	31.73	32.03	32.53	32.94	32.87	---	33.34	34.40	35.40	35.86	36.62
21	31.10	31.78	32.05	32.54	32.95	32.89	33.13	33.35	34.42	35.40	35.86	36.65
22	31.13	31.82	32.06	32.59	32.97	32.92	33.13	33.37	34.46	35.40	36.04	36.70
23	31.17	31.86	32.07	32.61	32.98	32.87	33.14	33.39	34.55	35.40	36.19	36.70
24	31.20	31.89	32.08	---	33.00	32.86	33.15	33.41	34.61	35.49	36.20	36.73
25	31.24	31.92	32.10	---	33.03	32.86	33.16	33.43	34.62	35.51	36.25	36.74
26	31.27	31.97	32.12	---	33.03	32.87	33.17	33.45	34.64	35.52	36.30	36.74
27	31.31	31.99	32.13	32.56	33.04	32.90	33.14	33.48	34.70	35.53	36.32	36.74
28	31.35	32.00	32.14	32.57	33.05	32.94	33.11	33.53	34.78	35.54	36.36	36.74
29	31.39	31.98	32.17	32.58	---	32.97	33.10	33.57	34.89	35.54	36.36	36.74
30	31.43	31.93	32.18	32.59	---	32.98	33.08	33.62	34.91	35.55	36.37	36.74
31	31.48	---	32.20	32.60	---	33.00	---	33.66	---	35.56	36.37	---
MEAN	30.95	31.71	31.95	32.42	32.85	32.98	33.06	33.29	34.26	35.28	35.95	36.56

WTR YR 1994 MEAN 33.46 HIGHEST 30.39 OCT. 1, 1993 LOWEST 36.76 SEPT. 30, 1994



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174316064480800. Local number, 13.

LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-17 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95 ft (0-29.0 m), screened 10-40 ft (3.05-12.2 m). Depth 95 ft (29.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 2.33 ft (0.71 m) above land-surface datum.

REMARKS.--Recording observation well.

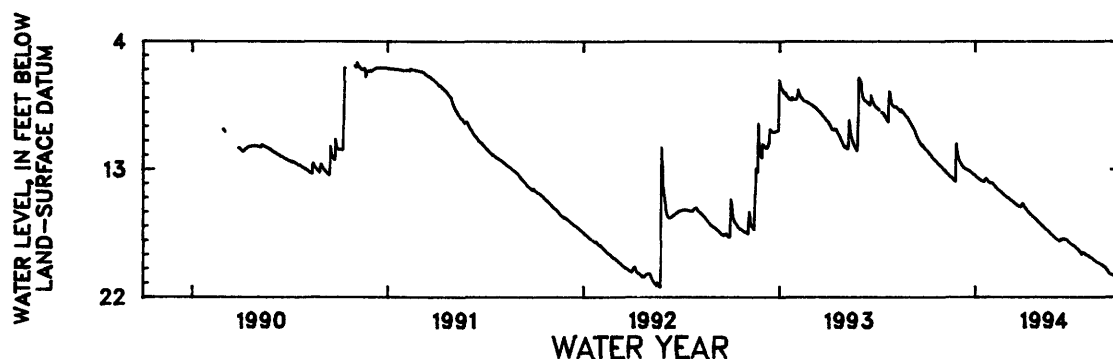
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.68 ft (1.43 m) below land-surface datum, Oct. 14, 1990; lowest water level recorded, 21.36 ft (6.51 m) below land-surface datum, May 23, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.63	12.92	12.29	13.44	13.97	14.95	15.49	16.76	17.87	18.32	19.13	19.94
2	11.67	12.96	12.38	13.47	13.97	14.98	15.58	16.80	17.91	18.35	19.15	19.98
3	11.70	13.01	12.45	13.50	14.00	15.00	15.64	16.84	17.94	18.37	19.19	20.05
4	11.74	13.05	12.53	13.55	14.04	15.02	15.69	16.88	17.97	18.39	19.22	20.12
5	11.79	13.08	12.59	13.59	14.08	15.05	15.74	16.91	18.00	18.41	19.23	20.17
6	11.84	13.12	12.65	13.61	14.13	15.08	15.80	16.96	18.01	18.43	19.24	20.22
7	11.88	13.16	12.72	13.64	14.18	15.12	15.83	16.99	18.05	18.47	19.27	20.28
8	11.93	13.21	12.77	13.66	14.22	15.14	15.90	17.01	18.04	18.54	19.30	20.33
9	11.99	13.26	12.81	13.69	14.26	15.16	15.94	17.05	17.99	18.56	19.33	20.37
10	12.02	13.30	12.88	13.72	14.31	15.20	15.98	17.10	17.95	18.59	19.37	20.40
11	12.06	13.34	12.90	13.75	14.35	15.23	16.03	17.14	17.93	18.61	19.41	20.43
12	12.12	13.37	12.93	13.76	14.40	15.25	16.07	17.18	17.93	18.64	19.44	20.43
13	12.17	13.41	12.97	13.79	14.43	15.27	16.11	17.22	17.92	18.69	19.46	20.43
14	12.21	13.46	12.99	13.82	14.45	15.32	16.13	17.25	17.90	18.77	19.49	20.46
15	12.25	13.51	13.00	13.85	14.48	15.35	16.18	17.27	17.89	18.80	19.51	20.46
16	12.30	13.54	13.00	13.87	14.51	15.39	16.22	17.29	17.89	18.83	19.55	20.45
17	12.33	13.54	13.01	13.87	14.54	15.41	16.25	17.32	17.93	18.84	19.56	20.45
18	12.37	13.56	13.05	13.82	14.57	15.45	16.29	17.35	17.91	18.99	19.57	20.46
19	12.42	13.61	13.07	13.76	14.61	15.47	16.31	17.40	17.91	18.84	19.60	20.52
20	12.46	13.65	13.09	13.70	14.66	15.50	16.36	17.45	17.93	18.85	19.63	20.54
21	12.51	13.69	13.11	13.66	14.70	15.53	16.38	17.50	17.95	18.86	19.64	20.55
22	12.54	13.74	13.14	13.64	14.73	15.56	16.41	17.54	17.98	18.88	19.66	20.56
23	12.59	13.78	13.17	13.69	14.77	15.58	16.45	17.57	18.05	18.89	19.69	20.57
24	12.62	13.82	13.19	13.75	14.80	15.61	16.48	17.61	18.13	18.91	19.70	20.58
25	12.64	13.86	13.23	13.80	14.83	15.63	16.53	17.64	18.14	18.96	19.72	20.61
26	12.68	11.28	13.27	13.86	14.85	15.65	16.58	17.69	18.16	19.02	19.75	20.64
27	12.72	11.20	13.31	13.90	14.89	15.66	16.60	17.72	18.22	19.04	19.78	20.66
28	12.76	11.73	13.34	13.91	14.92	15.59	16.65	17.75	18.25	19.06	19.80	20.69
29	12.80	12.01	13.36	13.94	---	15.50	16.69	17.77	18.29	19.07	19.84	20.71
30	12.84	12.18	13.38	13.98	---	15.43	16.73	17.80	18.30	19.08	19.87	20.76
31	12.88	---	13.41	13.98	---	15.41	---	17.83	---	19.08	19.91	---
MEAN	12.27	13.11	12.97	13.74	14.45	15.34	16.17	17.31	18.01	18.75	19.52	20.43

WTR YR 1994 MEAN 16.01 HIGHEST 10.78 LOWEST 20.77 SEPT. 30, 1994



GROUND-WATER LEVELS

505

ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.

LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: U.S. Virgin Islands Government, Name: Grade School 3.

AQUIFER.--Volcanic breccia.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.90 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

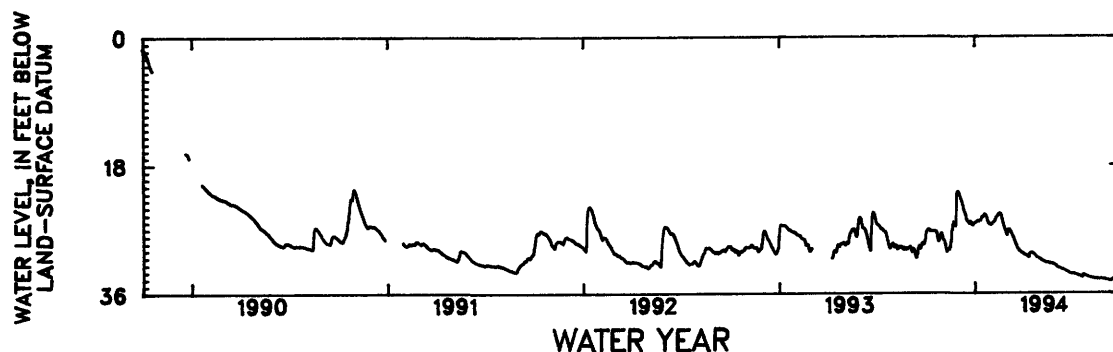
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.53 ft (0.47 m) below land-surface datum, Oct. 1, 1989; lowest water level recorded, 35.38 ft (10.79 m) below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27.93	28.36	21.80	26.08	26.34	27.77	30.50	31.20	32.15	33.34	33.75	34.11
2	27.36	28.55	22.00	26.04	26.20	27.89	30.61	31.27	32.36	33.33	33.78	34.13
3	27.24	28.52	22.21	26.00	26.11	27.53	30.64	31.30	32.38	33.32	33.80	34.15
4	27.16	28.66	22.46	25.90	26.06	27.18	30.64	31.35	32.42	33.31	33.83	34.17
5	27.04	28.97	22.69	25.85	26.01	27.03	30.69	31.41	32.46	33.33	33.85	34.19
6	26.99	29.35	22.88	25.85	25.96	27.04	30.74	31.47	32.49	33.35	33.87	34.22
7	27.00	29.76	23.12	25.91	25.85	27.18	30.74	31.52	32.51	33.37	33.89	34.24
8	27.14	30.09	23.41	25.89	25.63	27.35	30.78	31.56	32.52	33.41	33.92	34.25
9	27.30	30.31	23.76	25.81	25.41	27.48	30.88	31.58	32.55	33.44	33.94	34.26
10	27.27	30.08	24.13	25.77	25.31	27.65	30.98	31.60	32.59	33.47	33.96	34.28
11	27.25	29.89	24.38	25.78	25.25	27.85	31.00	31.65	32.64	33.50	33.98	34.29
12	27.23	29.94	24.53	25.77	25.12	28.04	30.76	31.69	32.67	33.54	33.99	34.25
13	27.27	29.89	24.73	25.43	24.98	28.15	30.47	31.73	32.69	33.57	33.99	34.14
14	27.29	29.88	25.02	25.28	24.87	28.32	30.38	31.76	32.70	33.60	34.00	34.07
15	27.28	29.63	25.38	25.33	24.79	28.55	30.36	31.74	32.73	33.63	34.00	34.05
16	27.27	29.39	25.73	25.32	24.77	28.80	30.30	31.73	32.76	33.66	34.01	34.05
17	27.26	28.82	25.85	25.14	24.79	29.01	30.30	31.75	32.82	33.69	34.01	34.06
18	27.28	28.10	25.87	24.94	24.93	29.17	30.37	31.77	32.87	33.73	34.02	34.06
19	27.31	27.16	25.98	24.93	25.15	29.34	30.45	31.81	32.92	33.76	34.03	34.03
20	27.34	26.61	26.15	24.99	25.42	29.53	30.52	31.83	32.95	33.79	34.03	33.87
21	27.58	26.26	26.28	25.02	25.73	29.70	30.55	31.83	32.97	33.42	34.01	33.53
22	27.97	26.02	26.08	25.18	26.06	29.80	30.62	31.85	33.01	33.45	33.99	33.37
23	28.44	26.08	25.95	25.49	26.36	29.90	30.71	31.87	33.06	33.48	33.99	33.37
24	28.75	26.34	26.00	25.83	26.63	30.03	30.81	31.90	33.11	33.51	33.99	33.44
25	28.65	26.57	26.14	26.00	26.88	30.17	30.91	31.89	33.16	33.55	34.00	33.44
26	28.34	26.60	26.30	26.14	27.09	30.24	30.99	31.89	33.19	33.58	34.02	33.42
27	27.99	23.87	26.44	26.27	27.28	30.26	31.03	31.92	33.22	33.61	34.03	33.40
28	27.72	22.02	26.45	26.31	27.54	30.33	31.04	31.97	33.25	33.64	34.04	33.43
29	27.57	21.71	26.29	26.34	---	30.42	31.07	32.03	33.28	33.67	34.05	33.48
30	27.68	21.77	26.19	26.40	---	30.40	31.13	32.08	33.32	33.69	34.07	33.55
31	27.99	---	26.15	26.43	---	30.42	---	32.13	---	33.72	34.09	---
MEAN	27.54	27.64	24.85	25.72	25.80	28.79	30.70	31.71	32.79	33.53	33.97	33.91

WTR YR 1994 MEAN 29.76 HIGHEST 21.69 NOV. 29, 1993 LOWEST 34.29 SEPT. 10, 11, 1994



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182038064580000. Local number, 8.

LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.50 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: U.S. Virgin Islands Water and Power Authority, Name: Kirwan Terrace, VIO-6.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-56 in (0-17.1 m), screened 56-76 ft (17.1-23.2 m). Depth 76 ft (23.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 1, 1991. Automated digital recorder installed on October 2, 1991.

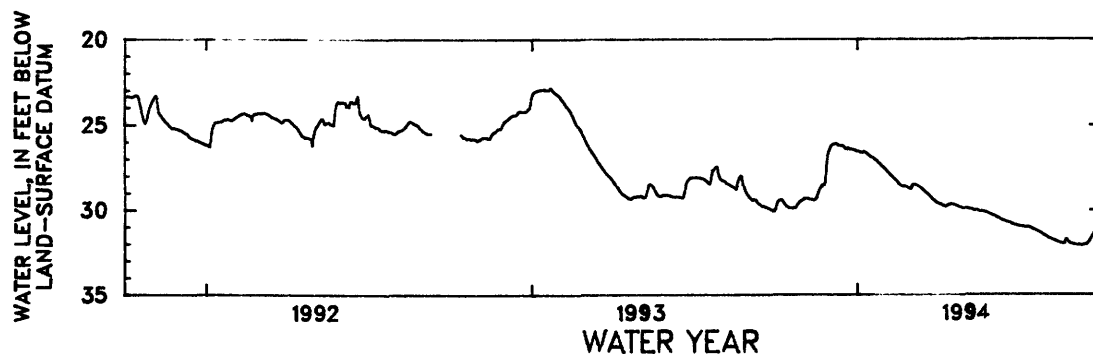
PERIOD OF RECORD.--October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.79 ft (6.95 m) below land-surface datum, Jan. 21, 1993; lowest water level recorded, 32.11 ft (9.79 m) below land-surface datum, Sept. 8, 9, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29.91	29.37	26.39	26.56	27.58	28.77	29.60	29.90	30.31	30.97	31.60	32.05
2	29.70	29.32	26.29	26.55	27.64	28.69	29.63	29.89	30.33	30.98	31.63	32.06
3	29.55	29.32	26.21	26.56	27.71	28.58	29.65	29.89	30.35	30.98	31.67	32.07
4	29.46	29.30	26.17	26.60	27.76	28.52	29.66	29.91	30.38	30.99	31.69	32.08
5	29.42	29.30	26.13	26.60	27.81	28.49	29.69	29.92	30.41	30.99	31.72	32.08
6	29.40	29.31	26.12	26.62	27.87	28.49	29.72	29.93	30.43	31.00	31.73	32.09
7	29.38	29.33	26.11	26.62	27.93	28.51	29.74	29.94	30.47	31.02	31.76	32.09
8	29.41	29.36	26.09	26.57	27.99	28.54	29.77	29.96	30.49	31.03	31.78	32.10
9	29.49	29.36	26.11	26.58	28.03	28.57	29.79	29.97	30.52	31.03	31.81	32.11
10	29.58	29.37	26.16	26.61	28.10	28.61	29.79	29.99	30.56	31.03	31.83	32.09
11	29.65	29.38	26.20	26.65	28.14	28.64	29.74	30.01	30.58	31.00	31.85	32.06
12	29.71	29.40	26.21	26.69	28.19	28.68	29.71	30.02	30.61	31.03	31.87	32.06
13	29.78	29.40	26.21	26.73	28.24	28.72	29.69	30.01	30.63	31.05	31.89	32.05
14	29.80	29.37	26.24	26.79	28.30	28.77	29.68	30.01	30.64	31.07	31.92	32.04
15	29.83	29.32	26.24	26.83	28.36	28.81	29.66	30.02	30.66	31.11	31.94	32.01
16	29.86	29.25	26.23	26.88	28.42	28.87	29.65	30.04	30.68	31.13	31.96	31.94
17	29.87	29.10	26.29	26.89	28.49	28.91	29.65	30.06	30.70	31.16	31.97	31.87
18	29.88	28.94	26.36	26.91	28.54	28.96	29.66	30.08	30.72	31.17	31.98	31.78
19	29.89	28.80	26.41	26.95	28.58	29.01	29.68	30.09	30.74	31.20	31.98	31.68
20	29.89	28.71	26.41	27.00	28.60	29.04	29.70	30.09	30.76	31.23	31.99	31.58
21	29.88	28.65	26.41	27.04	28.60	29.10	29.72	30.09	30.78	31.25	31.95	31.48
22	29.87	28.58	26.38	27.08	28.60	29.15	29.74	30.10	30.81	31.29	31.75	31.40
23	29.87	28.53	26.39	27.12	28.61	29.20	29.76	30.12	30.83	31.31	31.74	31.33
24	29.81	28.52	26.41	27.18	28.63	29.26	29.79	30.13	30.85	31.34	31.83	31.25
25	29.70	28.50	26.43	27.23	28.64	29.32	29.81	30.15	30.87	31.36	31.90	31.19
26	29.64	28.36	26.43	27.28	28.68	29.37	29.82	30.17	30.89	31.40	31.95	31.13
27	29.59	27.68	26.44	27.33	28.71	29.41	29.85	30.19	30.91	31.43	31.99	31.12
28	29.51	27.15	26.47	27.39	28.74	29.46	29.87	30.21	30.92	31.47	32.02	31.13
29	29.48	26.78	26.48	27.44	---	29.50	29.89	30.23	30.94	31.50	32.03	31.14
30	29.44	26.55	26.50	27.48	---	29.55	29.90	30.25	30.95	31.53	32.04	31.17
31	29.40	---	26.55	27.53	---	29.58	---	30.28	---	31.56	32.05	---
MEAN	29.67	28.81	26.31	26.91	28.27	28.94	29.73	30.05	30.66	31.18	31.87	31.74

WTR YR 1994 MEAN 29.51 HIGHEST 26.08 DEC. 8, 1993 LOWEST 32.11 SEPT. 8, 9, 1994



GROUND-WATER LEVELS

507

ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.

LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: U.S. Virgin Islands Government, Name: Guinea Gut Well.

AQUIFER.--Louisenhoj Formation (Donnelly, 1959).

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 280 ft (85.36 m) above mean sea level, from topographic map.

Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

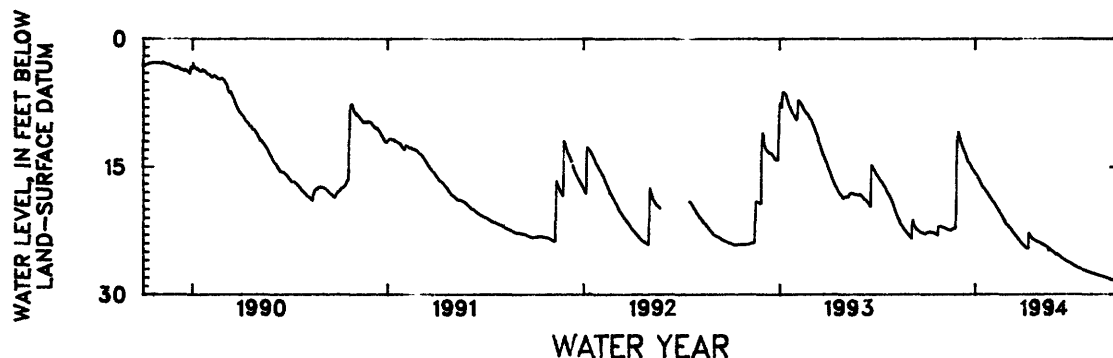
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.71 ft (0.79 m) below land-surface datum, Jan. 3, 1990; lowest water level recorded, 28.45 ft (8.67 m) below land-surface datum, Sept. 30, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.83	22.05	11.06	15.72	18.91	21.76	24.17	23.89	25.33	26.47	27.35	27.99
2	22.77	22.07	11.40	15.80	19.00	21.82	24.24	23.92	25.22	26.49	27.38	28.01
3	22.71	22.10	11.66	15.90	19.10	21.86	24.32	23.95	25.27	26.54	27.40	28.03
4	22.67	22.12	11.87	15.99	19.16	21.92	24.36	23.99	25.32	26.57	27.42	28.05
5	22.66	22.15	12.00	16.12	19.23	21.98	24.45	24.02	25.37	26.61	27.44	28.07
6	22.66	22.18	12.22	16.22	19.33	22.04	24.50	24.07	25.44	26.67	27.46	28.09
7	22.65	22.22	12.42	16.33	19.44	22.13	24.55	24.10	25.48	26.71	27.48	28.12
8	22.65	22.26	12.57	16.43	19.53	22.21	24.57	24.14	25.53	26.74	27.49	28.14
9	22.64	22.30	12.71	16.61	19.63	22.30	24.60	24.19	25.58	26.77	27.51	28.18
10	22.65	22.33	12.89	16.73	19.76	22.39	24.56	24.22	25.63	26.80	27.53	28.20
11	22.66	22.37	13.03	16.90	19.86	22.50	22.75	24.26	25.68	26.84	27.56	28.22
12	22.67	22.37	13.18	17.01	19.97	22.58	22.80	24.29	25.74	26.87	27.58	28.24
13	22.69	22.40	13.35	17.13	20.07	22.66	23.01	24.33	25.79	26.90	27.59	28.26
14	22.71	22.42	13.51	17.29	20.17	22.73	23.13	24.37	25.84	26.92	27.62	28.28
15	22.73	22.44	13.71	17.43	20.28	22.81	23.24	24.42	25.88	26.94	27.64	28.30
16	22.75	22.47	13.88	17.47	20.40	22.89	23.32	24.46	25.93	26.97	27.66	28.32
17	22.75	22.45	14.07	17.52	20.49	22.98	23.38	24.51	25.97	27.01	27.68	28.33
18	22.80	22.39	14.23	17.58	20.61	23.06	23.44	24.56	26.02	27.02	27.70	28.35
19	22.85	22.31	14.39	17.67	20.70	23.15	23.49	24.61	26.05	27.05	27.73	28.37
20	22.88	22.27	14.46	17.77	20.82	23.22	23.54	24.65	26.08	27.07	27.74	28.38
21	22.93	22.22	14.55	17.85	20.93	23.31	23.58	24.71	26.12	27.10	27.76	28.38
22	22.96	22.21	14.61	17.95	21.05	23.39	23.62	24.77	26.15	27.12	27.78	28.39
23	23.00	22.19	14.74	18.02	21.16	23.48	23.65	24.83	26.18	27.14	27.80	28.40
24	22.00	22.18	14.85	18.13	21.27	23.57	23.68	24.87	26.21	27.16	27.81	28.40
25	22.00	22.17	14.98	18.22	21.37	23.66	23.72	24.92	26.24	27.18	27.83	28.41
26	21.99	19.62	15.13	18.32	21.48	23.74	23.75	24.97	26.27	27.21	27.85	28.41
27	21.98	14.66	15.27	18.42	21.57	23.82	23.77	25.03	26.31	27.23	27.87	28.42
28	21.99	12.51	15.34	18.56	21.68	23.89	23.81	25.08	26.35	27.25	27.89	28.43
29	21.99	11.37	15.42	18.64	---	23.96	23.84	25.14	26.39	27.28	27.91	28.43
30	22.01	10.81	15.52	18.73	---	24.04	23.87	25.20	26.43	27.30	27.94	28.45
31	22.03	---	15.63	18.81	---	24.10	---	25.27	---	27.33	27.96	---
MEAN	22.56	20.85	13.70	17.33	20.25	22.90	23.79	24.51	25.86	26.94	27.66	28.27

WTR YR 1994 MEAN 22.89 HIGHEST 10.79 NOV. 30, 1993 LOWEST 28.45 SEPT. 30, 1994



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182048064430400. Local number, 14.

LOCATION.--Lat 18°20'48", long 64°43'04", Hydrologic Unit 21020001, 0.27 mi southwest of Coral Bay Church, 1.05 mi southeast of King Hill, and 0.08 mi west of Hwy 107 in Carolina area. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Coral Bay, VIEO-4.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-50 ft (0-15.2 m), cased 6 in (0.15 m), 0-50 ft (0-15.2 m), screened 20-50 ft (6.09-15.2 m). Depth 50 ft (15.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well. Drilled on February 1991. Water levels affected by nearby pumping well.

Water levels affected by aquifer test during May 1993. Use as a production well since March 1994.

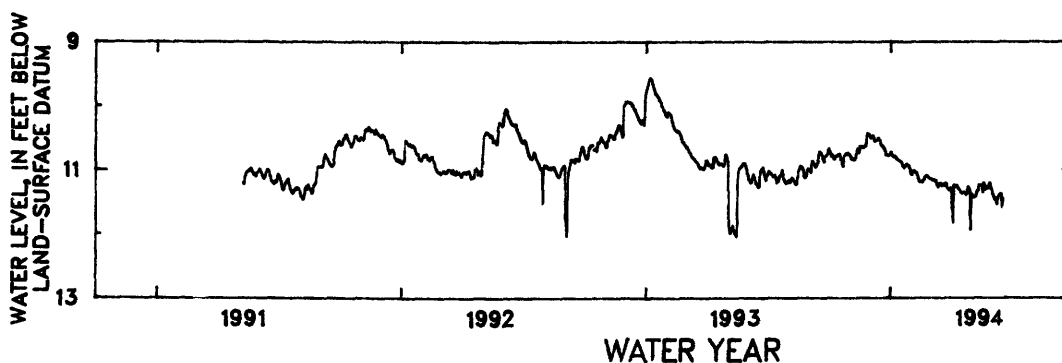
PERIOD OF RECORD.--May 1991 to July 1994, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.57 ft (2.92 m) below land-surface datum, Jan. 6, 7, 1993; lowest water level recorded, 12.27 ft (3.74 m) below land-surface datum, June 16, 1994.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1993 TO SEPTEMBER 1994
INSTANTANEOUS OBSERVATION AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.67	10.75	10.47	10.73	11.05	11.14	11.28	11.37	11.35	---	---	---
2	10.70	10.77	10.50	10.72	11.07	11.14	11.61	11.38	11.39	---	---	---
3	10.73	10.80	10.49	10.77	11.01	11.14	11.29	11.41	11.42	---	---	---
4	10.75	10.83	10.49	10.78	11.01	11.16	11.84	11.43	11.44	---	---	---
5	10.79	10.83	10.46	10.79	11.03	11.16	11.25	11.42	11.47	---	---	---
6	10.76	10.82	10.49	10.80	11.03	11.15	11.23	11.43	11.44	---	---	---
7	10.77	10.84	10.53	10.79	11.05	11.16	11.25	11.42	11.48	---	---	---
8	10.82	10.83	10.55	10.79	11.04	11.17	11.26	11.41	11.54	---	---	---
9	10.83	10.85	10.54	10.81	11.05	11.18	11.27	11.35	11.46	---	---	---
10	10.83	10.81	10.54	10.83	11.09	11.16	11.24	11.33	11.42	---	---	---
11	10.79	10.75	10.53	10.83	11.13	11.25	11.27	11.32	11.40	---	---	---
12	10.78	10.70	10.53	10.85	11.16	11.22	11.28	11.30	11.38	---	---	---
13	10.78	10.67	10.50	10.85	11.19	11.27	11.30	11.23	11.39	---	---	---
14	10.78	10.71	10.50	10.86	11.18	11.22	11.31	11.25	11.37	---	---	---
15	10.76	10.73	10.53	10.87	11.19	11.21	11.35	11.25	11.38	---	---	---
16	10.77	10.63	10.54	10.87	11.17	11.21	11.35	11.25	11.59	---	---	---
17	10.75	10.66	10.60	10.88	11.19	11.21	11.37	11.24	11.45	---	---	---
18	10.78	10.64	10.61	10.93	11.19	11.24	11.37	11.36	---	---	---	---
19	10.83	10.63	10.62	10.95	11.16	11.25	11.35	11.20	---	---	---	---
20	10.87	10.64	10.63	10.93	11.15	11.22	11.35	11.21	---	---	---	---
21	10.92	10.65	10.65	10.97	11.11	11.23	11.36	11.24	---	---	---	---
22	10.95	10.65	10.67	10.94	11.11	11.25	11.37	11.31	---	---	---	---
23	10.84	10.63	10.67	10.94	11.09	11.23	11.39	11.30	---	---	---	---
24	10.78	10.62	10.71	10.91	11.09	11.21	11.37	11.27	---	---	---	---
25	10.76	10.62	10.77	10.91	11.10	11.21	11.33	11.26	---	---	---	---
26	10.76	10.46	10.76	10.93	11.11	11.27	11.30	11.27	---	---	---	---
27	10.74	10.43	10.77	10.93	11.13	11.29	11.26	11.29	---	---	---	---
28	10.75	10.43	10.78	10.93	11.13	11.29	11.29	11.22	---	---	---	---
29	10.76	10.44	10.77	10.97	---	11.32	11.31	11.20	---	---	---	---
30	10.73	10.45	10.77	11.00	---	11.32	11.95	11.27	---	---	---	---
31	10.76	---	10.76	11.06	---	11.29	---	11.28	---	---	---	---
MEAN	10.78	10.68	10.60	10.87	11.11	11.22	11.36	11.31	11.43	---	---	---

WTR YR 1994 MEAN 11.02 HIGHEST 10.42 NOV. 27, 1993 LOWEST 12.27 JUNE 16, 1994



A	Page	Page
Access to WATSTORE data	30,31	
Acre-foot, definition of	31	
Adenosine triphosphate, definition of	31	
Adjuntas, Lago Garzas near	60	
Adjuntas, Lago Garzas No. 1 near dam near	418-423	
Adjuntas, Río Cidra at	404	
Adjuntas, Río Grande de Arecibo near	61,62,404	
Adjuntas, Río Vacas near	404	
Aguada, Río Cañas near	414	
Aguada, Río Culebrinas near	399,400	
Aguas Buenas, Quebrada Grande near	412	
Aguas Buenas, Río Caguitas near	216-221	
Aguas Buenas, Río de Bayamón near	155,156,412	
Aguas Verdes basin, Quebrada, ground-water records in	457-461	
Aibonito, at Llanos near Aibonito, Río	411	
Algae growth potential, definition of	31	
Almirante Sur, Río Unibón off Hwy 160 near	409	
Annual 7-day minimum, definition of	33	
Añasco, Río Grande de Añasco near	392,393	
Aquifer, definition of	31	
Arecibo, Río Grande de Arecibo above	71	
Arecibo, Río Tanama above Observatorio de	406	
Arenas near Utuado, Quebrada	405	
Arroyata on Hwy 171 at Cidra, Río	411	
Arroyatas at mouth near Comerio, Río	411	
Arroyatas on Hwy 775 near Cidra, Río	411	
Artesian, definition of	31	
Artificial substrate, definition of	38	
Ash mass, definition of	32	
B		
Bacteria, definition of	31	
Bahía de San Juan No. 5 at San Juan	175	
Bairoa at Bairoa, Río	245-251	
near Caguas	252,253	
Barranquitas at Barranquitas, Río	411	
Barranquitas, Río Grande de Manatí, near	406	
Barranquitas, Río Usabón on Hwy 162, near	410	
Bauta at Pozas, Río	408	
Bauta near Divisoria, Río	408	
Bauta near Orocovis, Río	94	
Bayamón at Flood Channel at Bayamón, Río de	160,161	
near Aguas Buenas	155,156	
near Bayamón	157	
Bayamón basin, Río de, gaging station records in	148-157	
low-flow partial-records stations in	412,413	
water-quality records in	150-161	
Bayamón below Lago de Cidra, Río de	149-154	
near Aguas Buenas	412	
near Bayamón	157	
Bayamón, Quebrada Cerro Gordo at La Aldea at	412	
Bayamón, Quebrada Santa Olaya on Hwy 174 near	413	
Bayamón near Minillas, Río	413	
Bayamón, Río Guaynabo near	158,159	
Bayaney, Río Camuy near	57	
Beatriz on Hwy 1 near Cayey, Quebrada	410	
Bed material, definition of	32	
Bed load, definition of	37	
Bed load discharge, definition of	37	
Bethlehem Gut at Highway 66 at Fairplains, St. Croix, VI	499	
Biochemical oxygen demand, definition of	32	
Biomass, definition of	32	
Blanca at El Jagual, Quebrada	181-186	
Blanco basin, Río, gaging station records in	313,314	
Blasina near Carolina, Quebrada	178,179	
Blue-green algae, definition of	36	
Bonne Resolution Gut at Bonne Resolution, St. Thomas, VI	482	
Borinquen, Río Turabo above	201-206	
Botijas near Botijas, Río	407	
near Carro	407	
Bottom material, definition of	32	
Bucaná at Highway 14 bridge near Ponce, Río	355	
Bucaná basin, Río, gaging station records in	349-352,355	
water-quality records in	353,354	
Bucarabones near Toa Alta, Río	412	
C		
Cacao, Río Toro Negro on Hwy 157 at	407	
Caguana, Río Tanama near	406	
Caguas, Lago Loíza No. 4 near mouth near	416,417	
Caguas, Río Bairoa near	252,253	
Caguas, Río Caguitas at Highway 30 at	243,244	
Caguas, Río Caguitas at Villa Blanca at	237-242	
Caguas, Río Caguitas near	222-236	
Caguas, Río Grande de Loíza at	207-215	
Caguitas at Highway 30 at Caguas, Río at Villa Blanca at Caguas	243,244	
near Caguas	237-242	
near Caguas	222-236	
near Aguas Buenas	216-221	
Caimito, Quebrada Las Curias Tributary near	413	
Campo Rico, Río Canóvanas near	298	
Camuy at Tres Pueblos Sinkhole, Río	56	
Camuy basin, Río, gaging station records in	56-58	
low-flow partial-records stations in	404	
Camuy near Bayaney, Río	57	
at Tres Pueblos Sinkhole	56	
near Hatillo	58	
near Lares	404	
off Hwy 129 near Lares	404	
Canal Principal de Diversiones at Lago de Guajataca	51,52	
Canóvanas near Campo Rico, Río	298	
Cañas at Achioté near Naranjito, Río	411	
at Río Cañas	281-287	
Cañas basin, Río, gaging station records in	281	
water-quality records in	282-287	
Caonillas above Lago Caonillas, Río	406	
Caonillas above Lago Caonillas near Jayuya, Río	66,67	

Page	Page
Caonillas, Lago Caonillas at	68
Caricaboa at Jayuya, Río	405
Carolina, Quebrada Blasina near	178,179
Carolina, Río Grande de Loíza at	297
Carro, Río Botijas near	407
Castañer, Lago Guayo near	386
Cataño, Río Hondo at Flood Channel near	146,147
Cayaguas at Cerro Gordo, Río	193
Cayey, Lago Carite No. 1 near dam near	418-423
Cayey, Lago Carite No. 3 on Río de la Plata near	416,417
Cayey, Quebrada Beatriz on Hwy 1, near	410
Cayey, Quebrada Santo Domingo at	410
Cayey, Río de la Plata on Hwy 171, near	410
Cayey, Río de la Plata on Hwy 738, near	410
Cayey, Río Guavate on Hwy 52, near	410
Cells/volume, definition of	32
Central Cambalache, Río Grande de Arecibo at	82,83
Central Pellejas, Río Pellejas at	405
Central Pellejas, Río Vivi near	405
Central Rufina, Río Guayanilla at	362,363
Cerrillos above Lago Cerrillos near Ponce, Río near Ponce	349 352-354
Cerro Gordo at La Aldea at Bayamón, Quebrada	412
Cerro Gordo, Río Cayaguas at	193
Charco Hondo, Río Tanamá at	81
Chemical oxygen demand, definition of	32
Chico at Providencia, Río	326,327
Chico basin, Río, water-quality records in	326,327
Chlorophyll, definition of	32
Ciales, Río Cialitos at Highway 649 at	98,99
Ciales, Río Cialitos on Hwy 614, near	408
Ciales, Río Grande de Manatí at	95
Ciales, Río Grande de Manatí at Highway 149 at	96,97
Ciales, Río Toro Negro, near	408
Cialitos at Cialitos, Río	408
Cialitos at Highway 649 at Ciales, Río	98,99,408
Cialitos on Highway 614 near Ciales, Río	408
Cibuco at Vega Baja, Río	109-111
at Cibuco	409
below Corozal	106-108
on Hwy 620 near Vega Alta	409
Cibuco basin, Río, gaging-station records in	106-109 432-435
ground-water records in	408-410
low-flow partial-record stations in	107-111
water-quality records in	404
Cidra at Adjuntas, Río	148
Cidra, Lago de Cidra at Damsite near	411
Cidra, Río Arroyata on Hwy 171 at	411
Cidra, Río Arroyatas on Hwy 775 near	411
Coamo basin, Río, gaging station records in	334 335,336
water-quality records in	334
Coamo at Coamo, Río	335,336
near Coamo	32
Color unit, definition of	411
Comerio, Río Arroyatas at mouth near	118-124
Comerio, Río de La Plata at	125,126
Comerio, Río de la Plata near	32
Contents, definition of	33
Control, definition of	33
Control structure, definition of	2
Cooperation	106-108
Corozal, Río Cibuco below	408
Corozal, Río Corozal above Sewage plant, at	408
Corozal, Río de los Negros at mouth, at	407
Corozal, Río Grande de Manatí, near	409
Corozal, Río Mavilla on Hwy 164, near	404
Criminales near Lares, Río	412
Cruz near Toa Alta, Río	33
Cubic foot per second, definition of	33
Cubic foot per second-day, definition of	33
Cubic feet per second per square mile, definition of	33
Cuesta Arriba on Hwy 816 at Nuevo, Río	411
Culebrinas at Highway 404 near Moca, Río	398
at Perchas No. 1	414
at San Sebastian	399,400
near Aguada	396,397
near San Sebastián	398
Culebrinas basin, Río, gaging station records in	479
ground-water records in	414
low-flow partial-record stations in	396-400
water-quality records in	
D	
Damsite, Lago El Guineo at	92
Damsite, Lago Loíza at	288,289
Damsite, Lago La Plata at	135
Damsite, Lago Lucchetti at	364
Damsite, Lago de Matrullas at	93
Damsite, Río Grande de Loíza below	290-294
Definition of terms	31-40
Descalabrado basin, Río, gaging station records in	337 337
Descalabrado near Los Llanos, Río	36
Diatoms, definition of	404-414
Discharge at low-flow partial-record stations in Puerto Rico	33 33 33 33 34 32
Discharge, definition of	
Dissolved, definition of	
Dissolved-solids concentrations, definition of	
Divisoria, Río Bauta near	
Diversity index, definition of	
Drainage area, definition of	
Drainage basin, definition of	
Dry mass, definition of	
E	
El Jagual, Quebrada Blanca at	181-186
El Mangó, Río Gurabo below	254-260
El Señorial, Río Piedras at	162-168
El Verde, Quebrada Sonadora near	300
El Verde, Quebrada Toronja at	301
El Verde, Río Grande near	305
Esperanza, Río Tanamá at	406
Espritu Santo basin, Río, gaging station records in	300-305 303,304
water-quality records in	

INDEX

	Page		Page
Espíritu Santo near Río Grande, Río	302-304	near Barranquitas	406
Explanation of records	9	near Corozal	407
		near Manatí	408
		near Morovis	89-91
F		Grande de Manatí basin, Río, gaging	
Fajardo below Fajardo, Río	311,312	station records in	86-100
near Fajardo	308-310	ground-water records in	429-431
Fajardo basin, Río, gaging station		low-flow partial-record stations in	406-408
records in	308	water-quality records in	87-102
water-quality records in	309-312	Grande de Patillas near Patillas, Río	328-330
Fecal coliform bacteria, definition of	32	Grande de Patillas basin, Río,	
Fecal streptococcal bacteria, definition of	32	gaging station records in	328
Fish Bay Gut at Fish Bay,		water-quality records in	329,330
St. John, VI	490	Grande near Aguas Buenas, Quebrada	412
water-quality record in	491-496	Grande near Moca, Quebrada	414
Florida, Río Grande de Arecibo below		Grande near El Verde, Río	305
Lago Dos Bocas near	69,70	Graphs:	
Frailes on Hwy 169 at Guaynabo, Quebrada	413	Ground-water levels at selected	
Fronton, Río Yunes at	406	wells in Puerto Rico and the	
		U.S. Virgin Islands	7
G		Monthly-mean discharge of selected	
Gage-height, definition of	34	streams in Puerto Rico	4
Gaging station, definition of	34	Green algae, definition of	36
Grande de Añasco basin, Río, gaging		Grid showing system for numbering	
station records in	386-389	wells and miscellaneous sites	
water-quality records in	387-393	(latitude and longitude)	20
Grande de Añasco near Añasco, Río	392,393	Ground-water level, records of	28,29
near Lares	387,388	Ground-water quality, records of	29,30
near San Sebastián	389-391	Ground-water records for Puerto Rico	426-480
Grande de Arecibo at Central		Ground-water records for U.S. Virgin Islands	502-508
Cambalache, Río	82,83	Ground-water station, definition of	34
above Arecibo	71	Ground-water stations in Puerto Rico,	
below Lago Dos Bocas near Florida	69,70	map showing location of	16
near Adjuntas	61,62,404	Ground-water stations in U.S. Virgin	
near Utuado	63,64,405	Islands, map showing location of	18
Grande de Arecibo basin, Río, gaging		Guabá near Naguabo, Quebrada	313
station records in	60-81	Guadiana above Sewage plant at Naranjito, Río	411
ground-water records in	428	Guadiana at Guadiana, Río	127-132
low-flow partial-record station in	404-406	near Naranjito	133,134
water-quality partial-record		Guajataca above mouth near	
stations, analyses of samples		Quebradillas, Río	53,54
collected at	416-423	above Sewage plant at Lares	404
water-quality records in	61-83	at Lares	48-50
Grande de Jayuya at Jayuya, Río	405	Guajataca basin, Río, gaging station	
Grande de Loíza at Caguas, Río	207-215	records in	48
at Carolina	297	ground-water records in	426,427
at Highway 183 near San Lorenzo	194-200	low-flow partial-record stations in	404
at Quebrada Arenas	180	water-quality partial-record stations,	
below Damsite	290-294	analyses of samples collected at	416-423
below Trujillo Alto	295,296	water-quality records in	49-54
Grande de Loíza basin, Río, gaging		Guanajibo at Highway 119 at San Germán, Río	368
station records in	180-298	near Hormigueros	380-382
ground-water records in	450-453	near San Germán	369,370
water-quality partial-record		Guanajibo basin, Río, gaging station	
stations, analyses of samples		records in	368-380
collected at	416-423	ground-water records in	466-478
water-quality records in	178-296	water-quality records in	369-382
Grande de Manatí at Ciales, Río	95	Guánica, Río Loco at	365,366
at Highway 2 near Manatí	100-103	Guaonica near Utuado, Río	405
at Highway 149 at Ciales	96,97	Guatemala at San Sebastian, Río	414
		Guavate on Hwy 52 near Cayey, Río	410

INDEX

Page	Page
water-quality partial-record stations, analyses of samples collected at 416-423	Río Guajataca basin 47
water-quality records in 116-144	Río Guanajibo basin 367
Lares, Río Camuy near 404	Río Herrera to the Río Antón Ruiz basins 299
Lares, Río Camuy off Highway 129 near 404	Río Hondo to the Río Puerto Nuevo basins 145
Lares, Río Criminales near 404	Río Humacao to the Río Seco basins 315
Lares, Río Grande de Añasco near 387,388	Río Inabón to the Río Loco basins 347
Lares, Río Guajataca above sewage plant at 404	Río de la Plata basin 113
Lares, Río Guajataca at 48-50	Río Salinas to the Río Jacaguas basins 331
Las Carreras at Unibón, near Morovis, Río 409	Río Yagüez and the Río Grande de Añasco basins 383
Las Curias Tributary near Caimito, Quebrada 413	Maricao, Río Mavilla on Highway 821 near 409
Las Piedras, Río Humacao at 316	Matón on Highway 14 at Matón Abajo, Río 410
Levels for Puerto Rico, ground water 426-480	Matrulla at mouth, Río 407
Levels for U.S. Virgin Islands, ground water 502-508	Maunabo at Lizas, Río 323
Limon above confluence with Río Yunes, Río 406	at Maunabo 324,325
Limon on Highway 613 near Tetuan, Río 406	Maunabo basin, Río, gaging stations records in 323
Lizas, Río Maunabo at 323	water-quality records in 324,325
Loco at Guánica, Río 365,366	Mavilla, on Highway 164 near Corozal, Río 409
Loco basin, Río, water-quality records in 365,366	Mavilla, on Highway 821 near Maricao, Río 409
Los Guanos near Río Piedras, Quebrada 413	Maximum concentrations of fecal coliform bacteria at sampled sites, map showing location of 11
Los Llanos, Río Descalabrado near 337	Maximum concentrations of fecal streptococci bacteria at sampled sites, map showing location of 12
Los Morones near Moca, Quebrada 414	Mayagüez, Río Yagüez near 384,385
Los Negros at mouth at Corozal, Río de 408	Mean concentration, definition of 38
Low-flow partial-record stations in Puerto Rico, Discharge at 404-414	Mean discharge, definition of 33
Low-flow partial-record in North Central Puerto Rico, map showing location of 15	Measuring point, definition of 34
M	
Majada at La Plena, Río 333	Metamorphic stage, definition of 34
Majada basin, Río, ground-water records in 462,463	Methylene blue active substances, definition of 34
Mameyes basin, Río, gaging station records in 306	Micrograms per gram, definition of 34
Mameyes Abajo, Río Yunes at mouth near 406	Micrograms per liter, definition of 34
Mameyes near Sabana, Río 306	Milligrams of carbon per area or volume per unit time or periphyton and macrophytes and for phytoplankton, definition of 37
Manatí, Río Grande de Manatí at Highway 2 near 100-102	Milligrams of oxygen per area or volume per unit time for periphyton and macrophytes and for phytoplankton, definition of 37
Manatí, Río Grande de Manatí near 408	Milligrams per liter, definition of 34
Maps:	Minillas, Río Bayamón near 413
Location of surface-water stations in Puerto Rico 13	Minillas, Río Minillas on Highway 174 near 413
Location of ground-water stations in Puerto Rico 16	Moca, Quebrada Grande near 414
Location of ground-water stations in the U.S. Virgin Islands 18	Moca, Quebrada Los Morones near 414
Location of low-flow partial-record stations in North Central Puerto Rico 15	Moca, Río Culebrinas at Highway 404 398
Location of maximum concentration of fecal coliform bacteria at sample sites 11	near 418
Location of maximum concentration of fecal streptococci bacteria at sample sites 12	Morovis above Sewage Plant near Morovis, Río 409
Location of surface-water stations in the U.S. Virgin Islands 17	Morovis, Quebrada Grande de Morovis on Highway 634 near 409
Location of surface-water stations in Vieques Island 19	Morovis, Quebrada Grande near 407
Location of water-quality stations in Puerto Rico 14	Morovis, Río Grande de Manatí near 89-91
Río Camuy basin 55	Morovis, Río Las Carreras at Unibón, near 409
Río Cibuco basin 105	N
Río Culebrinas basin 395	Naguabo, Quebrada Guabá near 313
Río Grande de Arecibo basin 59	Naguabo, Río Icacos near 314
Río Grande de Lofza basin 177	Naranjito, Lago La Plata No. 3 near dam near 418-423
Río Grande de Manatí basin 85	Naranjito, Lago La Plata No. 5 near mouth near 416,417
	Naranjito, Río Cañas at Achioté, near 411

	Page		Page
Naranjito, Río Guadiana above Sewage Plant at	411	Portugués basin, Río, gaging	
Naranjito, Río Guadiana near	133,134	station records in	356
National Stream-Quality Accounting		water-quality records in	357-360
Network, definition of	35	Portugués, Río Chiquito at	432
National Trends Network, definition of	35	Pozas, Río Bauta, at	408
Natural substrate, definition of	38	Primary productivity, definition of	37
Networks and programs, special	9	Programs, special networks and	9
Nuevo, Río Cuestas Arriba en Highway 816 at	411	Providencia, Río Chico at	326,327
		Proyecto La Plata, Quebrada Honda at mouth, at	410
O		Proyecto La Plata, Río de La Plata at	115-117
Organic mass, definition of	32	Publications on techniques of	
Organism, definition of	35	water-resources investigations	41-44
Organism count/area, definition of	35	Puerto Nuevo basin, Río, gaging	
Organism count/volume, definition of	35	station records in	162-171
Orocovis, Río Bauta near	94	water-quality records in	163-175
Orocovis, Río Orocovis at	407		
Orocovis, Río Orocovis near	87,88	Q	
Orocovis, Río Sana Muertos near	407	Quality of water records of Puerto Rico,	
		surface- and	45-402
P		Quebrada Aguas Verdes basin,	
Parameter code, definition of	35	ground-water records in	457-461
Partial record station, definition of	35	Quebrada Arenas, Río Grande de Loíza at	180
Partial-record stations in Puerto Rico,		near Utuado	405
Discharge at	404-414	Quebrada Grande de Morovis on Highway 634	
Partial-record stations in North Central Puerto		near Morovis	409
Rico, map showing location of low-flow	15	Quebrada Grande near Morovis	407
Partial record station in Puerto Rico,		Quebrada Riachuelo at mouth	407
water quality at	416-423	Quebrada Santo Domingo at Cayey	410
Particle size, definition of	36	Quebradillas, Lago Guajataca No. 1	
Particle-size classification, definition of	36	near dam near	418-423
Patillas, Río Grande de Patillas near	328-330	Quebradillas, Lago Guajataca No. 3	
Pellejas, Río Pellejas at Central	405	near mouth near	416,417
Pellejas, Río Vivi near Central	405	Quebradillas, Río Guajataca above	
Percent composition, definition of	36	mouth near	53,54
Perchas, no. 1, Río Culebrinas at	414		
Periphyton, definition of	36	R	
Pesticides, definition of	36	Rabo del Buey, Río Lapas near	332
Phytoplankton, definition of	36	Río Majada at	333
Picocurie, definition of	36	Radiochemical program, definition of	37
Piedras, Basin, Río		Real Abajo, Río Inabón at	348
low flow partial-record stations in	413	Records, explanation of	9
Piedras at Hato Rey, Río	171-173	Records of ground-water levels	28,29
at El Señorial	162-168	Records of ground-water quality	29,30
near Río Piedras	169,170	Records of stage and water discharge	20-25
Pilón at Colonia Puerto Real, Quebrada (Vieques)	402	Records of surface-water quality	25-28
Plankton, definition of	36	Recoverable from bottom material, definition of	37
Playa de Guayanés, Río Guayanés		Return period, definition of	37
above mouth at	321,322	Río Abajo, Río Indio on Highway 22 at	410
Plena, Río Majada at La	333	Río Cañas, Río Cañas at	281-287
Polychlorinated biphenyls, definition of	37	Río Grande, Río Espíritu Santo near	302-304
Ponce, Lago Cerrillos at Damsite near	350,351	Río Piedras, Río Piedras near	169,170
Ponce, Río Bucaná at Highway 14 near	355	Río Piedras, Quebrada Los Guanós near	413
Ponce, Río Cerrillos above Lago Cerrillos near	349	River Gut at Highway 66 at Fairplains,	
Ponce, Río Cerrillos near	352-354	St. Croix, VI	498
Ponce, Río Portugués at	359,360	Rosario near Hormigueros, Río	371-379
Ponce, Río Portugués near	356-58	Runoff, in inches, definition of	37
Portugués at Ponce, Río	359,360		
near Ponce	356-358		

Page	Page
S	
Sabana basin, Río, gaging station records in	307
at Sabana	307
Sabana, Río Mameyes near	306
Sabana Seca, Río Hondo II, at	412
Saliente at Coabey near Jayuya, Río	65
Salinas, Río gaging station records in	332,333
Salvatierra near San Lorenzo, Quebrada	187-192
Sana Muertos, near Orocovis	407
San Germán, Río Guanajibo at Highway 119 at	368
San Germán, Río Guanajibo near	369,370
San Juan, Bahía de San Juan No. 5 at	175
San Juan, Laguna San José No. 2 at	174
San Lorenzo, Quebrada Salvatierra near	187-192
San Lorenzo, Río Grande de Loíza at Highway 183 near	194-200
San Sebastián, Río Culebrinas at	414
San Sebastián, Río Culebrinas near	396-397
San Sebastián, Río Guatemala at	414
San Sebastián, Río Sonador near	414
San Sebastián, Río Grande de Añasco near	389-391
Santa Olaya on Highway 174 near Bayamón, Quebrada	413
Sediment, definition of	37
7-day 10-year low flow, definition of	38
Sodium-adsorption-ratio, definition of	38
Solute, definition of	38
Sonadora near El Verde, Quebrada	300
Sonadora, Quebrada Sonadora at	413
Sonador near San Sebastián, Río	414
Special network and programs	9
Specific conductance, definition of	38
Stage-discharge relation, definition of	38
Station identification numbers	10
St. Croix, VI, Bethlehem Gut at Highway 66 at Fairplains	469
St. Croix, VI, Jolly Hill Gut at Jolly Hill	500
St. Croix, VI, River Gut at Highway 66 at Fairplains	498
St. John, VI, Fish Bay Gut at Fish Bay	484
water-quality records in	491-496
St. John, VI, Guinea Gut at Bethany	497
St. John, VI, Lameshur Bay Gut at Lameshur	484
water-quality records in	485-489
Streamflow, definition of	38
St. Thomas, VI, Bonne Resolution Gut at Bonne Resolution	482
St. Thomas, VI, Turpentine Run at Mount Zion	483
Substrate, definition of	38
Summary of hydrologic conditions	3-8
Surface and quality-of-water records for Puerto Rico	45-402
Surface area, definition of	39
Surface-water quality, records of	25-28
Surface-water records for U.S. Virgin Islands	482-500
Surface-water stations in Puerto Rico, map showing location of	13
Surface-water stations in U.S. Virgin Islands, map showing location of	17
Surface-water stations in Vieques, Island, map showing location of	19
Surficial bed material, definition of	39
Suspended, definition of	39
Suspended-recoverable, definition of	39
Suspended sediment, definition of	37
Suspended-sediment concentration, definition of	38
Suspended-sediment discharge, definition of	38
Suspended-sediment load, definition of	38
Suspended-total, definition of	39
T	
Tanamá above Observatorio de Arecibo	406
Tanamá at Charco Hondo, Río	81
at Esperanza	406
near Caguana	406
near Utuado	72-80
Taxonomy, definition of	39
Techniques of water-resources investigations, publications on	41-44
Terms, definition of	31-40
Tetuan, Río Limón on Highway 613 near	406
Thermograph, definition of	39
Time-weighted average, definition of	39
Toa Alta, Quebrada Cruz, near	412
Toa Alta, Río Bucarabones, near	412
Toa Alta, Río de La Plata at Highway 2 near	142-144
Río Lajas at	412
Toa Vaca above Lago Toa Vaca, Río	338-344
Tons per acre-foot, definition of	39
Tons per day, definition of	40
Toro Negro near Ciales, Río	408
Toro Negro on Highway 157 at Cacao, Río	407
Toronja at El Verde, Quebrada	301
Total, definition of	40
Total coliform bacteria, definition of	31
Total discharge, definition of	40
Total organism count, definition of	35
Total-recoverable, definition of	40
Total sediment discharge, definition of	38
Total-sediment load, definition of	38
Tres Pueblos Sinkhole, Río Camuy at	56
Tritium network, definition of	40
Trujillo Alto, Lago Loíza No. 7 near dam near	418-423
Trujillo Alto, Río Grande de Loíza below	295,296
Turabo above Borinquen, Río	201-206
Turpentine Run at Mount Zion, St. Thomas, VI	483
U	
Unibón above Sewage Plant at Unibón, Río	409
Unibón off Highway 160 near Almirante Sur, Río	409
Usabón on Highway 162 near Barranquitas, Río	410
Utuado, Quebrada Arenas near	405
Utuado, Río Guaonica near	405
Utuado, Lago Dos Bocas No. 1 near dam near	418-423
Utuado, Lago Dos Bocas No. 3 at west branch near	416,417
Utuado, Río Grande de Arecibo near	63,64
Utuado, Río Tanamá near	72-80

	Page		Page
V			
Vacas near Adjuntas, Río	404	Well CR-TW-10 - Bajura #10	478
Valenciano near Juncos, Río	261-267	Hondo to Río Puerto Nuevo basins, Río	
Vega Alta, Río Cibuco on Highway 620 near	407	Well 218 - Levittown No. 7	439
Vega Baja, Laguna Tortuguero outlet near	103	Well 219 - Fort Buchanan No. 1	440
Vega Baja, Río Cibuco at	109-111	Well 220 - Parque San Luis Rey	441
Vicente at mouth, Quebrada	412	Well PN-2	442
Viejo near Cabo Rojo, Río	436	Well PN-5	443
Vieques, Quebrada La Mina near Esperanza	401	Well PN-6	444
Vieques, Quebrada Pilón at Colonia Puerto Real	402	Well PN-7	445
Viví near Central Pellejas, Río	405	Well PN-8c	446
		Well PN-10	447
		Well PN-13	448
		Well PN-19	449
W			
Water-discharge, records of stage and	20-25	Humacao to Río Seco basins, Río	
Water-quality partial-record		Well 6 - Juana 5	454
stations in Puerto Rico	416-423	Well 96 - USGS TW-2 or Yabucoa 7	455
Water-quality stations in Puerto		Inabón to Río Loco basins, Río	
Rico, map showing location of	14	Well 132 - Yauco 2	464
Water-resources investigations,		Well 141 - Restaurada 8A	465
publications on techniques of	41-44	La Plata basin, Río de	
Water year, definition of	40	Well 214 - Dorado Beach No. 7	436
WATSTORE data, Access to	30,31	Well 216 - Pozo Navy - Campanillas	437
WDR, definition of	40	Well 217 - Monserrate TW - 2	438
Weighted average, definition of	40	Salinas to Río Jacaguas basins, Río	
Wells - Puerto Rico:		Well - 87 Alomar 1	456
Cibuco basin, Río		Well HW-TW-01	457
Well 70 - Sabana Hoyos	432	Well HW-TW-03C	458
Well 211 - Rosario No. 2	433	Well HW-TW-05B	459
Well 212 - Ponderosa TW-1	434	Well HW-TW-13	460
Well 213 - Pampano No. 2	435	Well HW-TW-14	461
Culebrinas basin, Río		Well RM - 05	462
Well 200 - Aguadilla Cement north	479	Well RM - 10	463
Grande de Arecibo basin, Río		Wells - U.S. Virgin Islands	
Well 204 - Gilberto Rivera	428	St. Croix	
Grande de Lofza basin, Río		Well 2 - USGS-10, Fairplains 2 (FP2)	502
Well 50 - USGS #50 Experimental Gurabo	450	Well 3 - Golden Grove 6 (PW6)	503
Well 222 - Campo Rico TW-1	451	Well 13 - WAPA - 17	504
Well CJ-TW-3B - Gurabo Oeste	452	St. John	
Well CJ-TW-19A - Bonneville	453	Well 11 - Guinea Gut Well	507
Grande de Manatí basin, Río		Well 14 - VIEO-4	508
Well 206 - Plazuela No. 2	429	St. Thomas	
Well 207 - Cantito La Luisa	430	Well 6 - Grade School 3	505
Well 210 - Gelo Martínez	431	Well 8 - VIEO-6	506
Guajataca basin, Río		Wet mass, definition of	32
Well 165 - Mateo Pérez, Bo. Saltos	426	WSP, definition of	40
Well 202 - Carmelo Barreto-García	427		
Guanajibo basin, Río		Y	
Well 143 - Vivoni, Hacienda Amistad	466	Yabucoa, Río Guayanés at	319,320
Well CR-TW-1 - Bajura #1	467	near Mayagüez	384,385
Well CR-TW-2A - Bajura #2A	468	Yagüez basin, Río, water-quality records in	384-385
Well CR-TW-2B - Bajura #2B	469	Yauco basin, Río, gaging station records in	364
Well CR-TW-2C - Bajura #2C	470	Yunes at Frontón, Río	406
Well CR-TW-3 - Bajura #3	471	Yunes at mouth near Mameyes Abajo, Río	406
Well CR-TW-4 - Bajura #4	472		
Well CR-TW-5 - Bajura #5	473	Z	
Well CR-TW-6 - Bajura #6	474	Zooplankton, definition of	36
Well CR-TW-7 - Bajura #7	475		
Well CR-TW-8 - Bajura #8	476		
Well CR-TW-9A - Bajura #9A	477		

CONVERSION FACTORS AND VERTICAL DATUM

Multiply	By	To obtain
<i>Length</i>		
inch (in.)	2.54×10^1	millimeter
	2.54×10^{-2}	meter
foot (ft)	3.048×10^{-1}	meter
mile (mi)	1.609×10^0	kilometer
<i>Area</i>		
acre	4.047×10^{-3}	square meter
	4.047×10^{-1}	square hectometer
	4.047×10^{-3}	square kilometer
square mile (mi ²)	2.590×10^0	square kilometer
<i>Volume</i>		
gallon (gal)	3.785×10^0	liter
	3.785×10^0	cubic decimeter
	3.785×10^{-3}	cubic meter
million gallons (Mgal)	3.785×10^{-3}	cubic meter
	3.785×10^{-3}	cubic hectometer
cubic foot (ft ³)	2.832×10^1	cubic decimeter
	2.832×10^{-2}	cubic meter
cubic-foot-per-second day [(ft ³ /s) d]	2.447×10^3	cubic meter
	2.447×10^{-3}	cubic hectometer
acre-foot (acre-ft)	1.233×10^3	cubic meter
	1.233×10^{-3}	cubic hectometer
	1.233×10^{-6}	cubic kilometer
<i>Flow</i>		
cubic foot per second (ft ³ /s)	2.832×10^1	liter per second
	2.832×10^1	cubic decimeter per second
	2.832×10^{-2}	cubic meter per second
gallon per minute (gal/min)	6.309×10^{-2}	liter per second
	6.309×10^{-2}	cubic decimeter per second
	6.309×10^{-5}	cubic meter per second
million gallons per day (Mgal/d)	4.381×10^1	cubic decimeter per second
	4.381×10^{-2}	cubic meter per second
<i>Mass</i>		
ton (short)	9.072×10^{-1}	megagram or metric ton

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

U.S. DEPARTMENT OF THE INTERIOR
U.S. Geological Survey, WRD
GSA Center 651 Federal Dr. Suite 400-15
Guaynabo, Puerto Rico 00965
